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ABSTRACT

This publication provides a comprehensive overview of work done across all parts of the National Center for Education Statistics (NCES). Each issue contains short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. Each issue also contains a message from the NCES on a timely subject in education statistics and a featured topic with invited commentary. The focus of volume 2, issue 1 is on "America's Kindergartners," the first report to present findings from the NCES Early Childhood Longitudinal Study (ECLS). ECLS completes the picture of the U.S. education system with surveys of 2 cohorts of the youngest learners, about 22,000 children from the kindergarten class of 1998-1999 and about 15,000 newborns of 2001. Issue 1 also contains reports on NCES work in the categories of: (1) early childhood education; (2) elementary and secondary education; (3) post-secondary education; (4) lifelong learning; (5) public, state, and federal libraries; (6) international statistics; (7) crosscutting statistics; (8) methodology; and (9) a list of data products, other publications, and funding opportunities. The focus of issue 2 is on the Common Core of Data (CCD) surveys, a series of six separate annual data collections of information from the administrative records of state education agencies. In addition to commentary on the CCD, issue 2 contains reports on elementary and secondary education, postsecondary education, international education, crosscutting studies, and research methodology, as well a list of data products, other publications, and funding opportunities for the quarter. (Issue 1 contains 39 tables and 41 figures. Issue 2 contains 32 tables and 26 figures.) (SLD)

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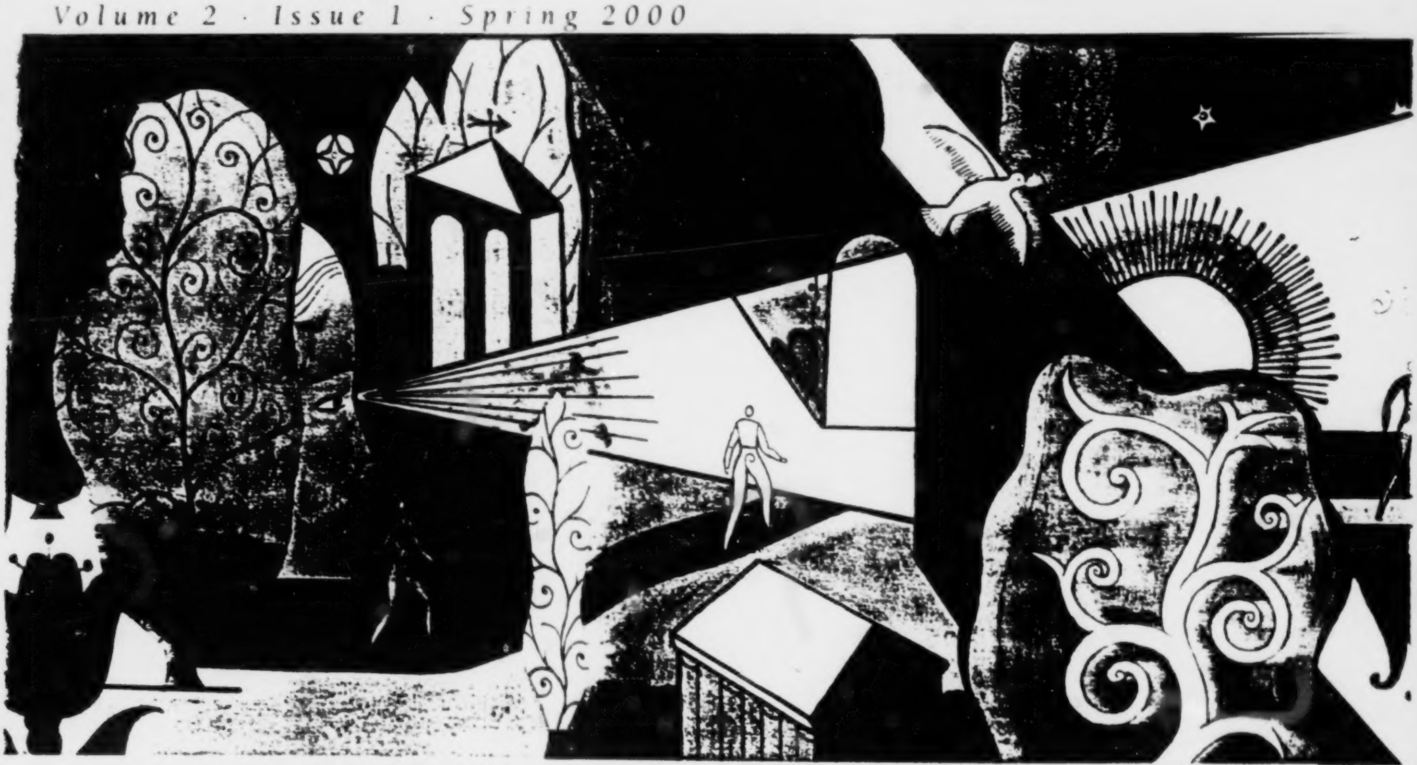

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EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications will appear in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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NOTE FROM NCES

Jeffrey Owings, Acting Associate Commissioner,
Elementary/Secondary and Library Studies Division

Studying Education as a Lifelong Process

This issue of the *Education Statistics Quarterly* highlights *America's Kindergartners*, the first report to present findings from the NCES Early Childhood Longitudinal Study (ECLS). Longitudinal studies such as ECLS complement the NCES core cross-sectional surveys. While the cross-sectional surveys provide a comprehensive range of descriptive statistics on the state of American education, the longitudinal surveys are designed to explain the educational, vocational, and personal development of students as they move through the education system. In addition, these surveys collect data on personal, familial, social, institutional, and cultural factors that affect students' development. Thus, the Center's longitudinal surveys make it possible to examine the "why" of the core descriptive statistics.

Scope of NCES Longitudinal Studies

NCES initiated its first longitudinal survey over a quarter of a century ago to reflect the paradigm shift in research from a study of phenomena based on an input-output model (or black box) approach to a process model approach. The Center's first longitudinal study sought to identify and explain the processes that linked traditional education inputs, such as student characteristics, to outputs, such as degrees and earnings received. Since 1972, longitudinal studies at NCES have expanded to include 10 studies that examine learning across the life span, literally from birth through elementary, middle, secondary, and postsecondary school to work.

Elementary school longitudinal studies

ECLS, the most recent addition to the NCES portfolio of longitudinal studies, completes the picture of the American education system with surveys of two cohorts of America's youngest learners—the kindergarten class of 1998–99 (ECLS-K) and newborns of 2001 (ECLS-B). These surveys will study the early development and learning experiences of children, during the critical years of birth through age 8, in an attempt to better explain their outcomes later in life.

ECLS-K will follow a nationally representative sample of about 22,000 kindergartners through fifth grade, measuring their home and academic environments, opportunities, and achievements. This study includes a set of assessments—cognitive, psychomotor, and social—administered to the cohort in the fall and spring of their kindergarten and first-grade years of school and in the spring of the third and fifth grades. Questionnaire data are also being collected from children's parents and teachers on the same schedule, with children's school principals being asked to complete a questionnaire in the spring of each survey year.

Beginning next spring, ECLS-B will follow a nationally representative sample of about 15,000 children born in calendar year 2001 from birth through first grade. Survey data on children's learning and development, and on their neighborhood and home environments, will be collected from children's parents. Children's cognitive, social, and physical development will also be measured. And when children enter school, data will be collected from their teachers and school principals.

Secondary school longitudinal studies

Secondary school surveys constitute the longest running series of NCES longitudinal surveys. The three studies in this area—the National Longitudinal Study of the High School Class of 1972 (NLS:1972/1986), the High School and Beyond Longitudinal Study (HS&B:1980/1992), and the National Education Longitudinal Study of 1988 Eighth-Graders (NELS:1988/2000)—represent the educational experiences of high school students from the 1970s, 1980s, and 1990s. These studies permit analysis at the cross-sectional, longitudinal, and cross-cohort or trend levels.

The fourth in this series of studies, the Education Longitudinal Study of 2002 (ELS:2002), will build upon the features of the three earlier studies. This study will extend the trend comparisons into another decade, and new questionnaire and assessment items will expand the types of longitudinal and cross-sectional analyses that are possible. ELS:2002 will also provide a basis for cross-cultural comparisons through assessment score links to two contemporary international cross-sectional studies—the 2002 International Life Skills Survey (ILSS) and the Program for International Student Assessment (PISA).

Postsecondary longitudinal studies

Because older students are increasingly enrolling in postsecondary education, studies that follow high school cohorts into postsecondary education are not representative of all postsecondary participants. To fill this gap, NCES began a series of postsecondary longitudinal studies in 1992.

The Beginning Postsecondary Students Longitudinal Study (BPS:1990/1994 and BPS:1996/2001) and the Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997 and B&B:2000/2001) both use the cross-sectional National Postsecondary Student Aid Study (NPSAS) as their baseline. BPS follows the progress of cohorts of beginning postsecondary students through their postsecondary education, and B&B follows cohorts of bachelor's degree recipients through their graduate-level education and workforce participation.

Summary

Over the past 28 years, NCES longitudinal studies have generated more than 1,300 publications in the form of journal articles, presentations, dissertations, and other reports. The secondary and postsecondary longitudinal data sets have provided a rich resource for researchers analyzing educational experiences. NCES expects that the addition of the elementary cohorts will provide useful information for researchers studying the earliest stages of learning.

FEATURED TOPIC: AMERICA'S KINDERGARTNERS

America's Kindergartners: Findings From the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99: Fall 1998
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America's Kindergartners: Findings From the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99: Fall 1998

Jerry West, Kristin Denton, and Elvie Germino-Hausken

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

Introduction

Kindergarten is a critical period in children's early school careers. It sets them on a path that influences their subsequent learning and school achievement. For most children, kindergarten represents the first step in a journey through the world of formal schooling. However, children entering kindergarten in the United States in the 1990s are different from those who entered kindergarten in prior decades. They come from increasingly diverse racial, ethnic, cultural, social, economic, and language backgrounds. Many kindergartners now come from single-parent families and from stepparent families. They also differ in the level and types of early care and educational experiences that they have had prior to kindergarten (Zill et al. 1995).

Our nation's schools face new opportunities and new challenges. Schools are expected to meet the educational needs of all children regardless of their background and experience. Services, such as meals and before- and after-school child care, that were provided by other institutions in the past are now being provided by schools. Teachers are faced with classrooms of children with increasingly diverse needs. In addition, growing pressure to raise academic standards and to assess all students' progress toward meeting those standards places even more burden on schools and teachers.

Whether or not children succeed in school is in part related to events and experiences that occur prior to their entering kindergarten for the first time. Children's preparedness for school and their later school success are related to multiple aspects of their development. Children's physical well-being, social development, cognitive skills and knowledge, and how they approach learning are all factors that contribute to their chances for success in school (Kagan, Moore, and Bredekamp 1995). Additionally, the differences we see in children's knowledge and skills as they enter kindergarten can be attributed to variations in family characteristics (e.g., maternal education, family type) and home experiences (e.g., home educational activities, nonparental care).

A complex and continuous collaboration exists between the child and the family; and the family can provide the resources and support that children require to increase their chances of succeeding in school (Maccoby 1992). For some children, the absence of resources and support places them at increased risk for school failure.

Much of the literature on the status of children in our nation's schools is focused on elementary school children (e.g., 4th-graders in the National Assessment of Educational Progress) and secondary school children (e.g., 12th-graders in the National Assessment of Educational Progress and 8th-, 10th-, and 12th-graders in the National Education Longitudinal Study of 1988 Eighth-Graders). Little information is available on kindergarten programs in the United States and on the nation's children as they enter kindergarten and move through the primary grades. Information about the entry status of the nation's kindergartners can inform educational policy and practice, especially those policies and practices that are targeted to meeting the needs of a diverse population of children entering kindergarten for the first time.

This report presents the first findings from a new national study of kindergartners and their schools, classrooms, teachers, and families. The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), sponsored by the National Center for Education Statistics (NCES), began following a nationally representative sample of some 22,000 kindergartners in the fall of 1998. ECLS-K will follow the same cohort of children from their entry into kindergarten through their fifth-grade year. Data will be collected not only in the fall of kindergarten but also in the spring of kindergarten, fall of first grade, spring of first grade, spring of third grade, and spring of fifth grade. In the fall of kindergarten, data were collected from children, their parents, and their teachers. Information from children was gathered during an individualized in-person assessment with the child in the child's school, parents were interviewed over the phone, and teachers were given self-administered questionnaires.

In the fall of 1998, about 4 million children were attending kindergarten in the United States, approximately 95 percent of them for the first time. Of the children attending kindergarten, 85 percent were in public school, and 15 percent were in private school; 55 percent were in full-day programs, and 45 percent were in part-day programs.

This report is based on the 95 percent of children entering kindergarten for the first time in the fall of 1998. Future reports will provide information on those children who repeated kindergarten in the fall of 1998.

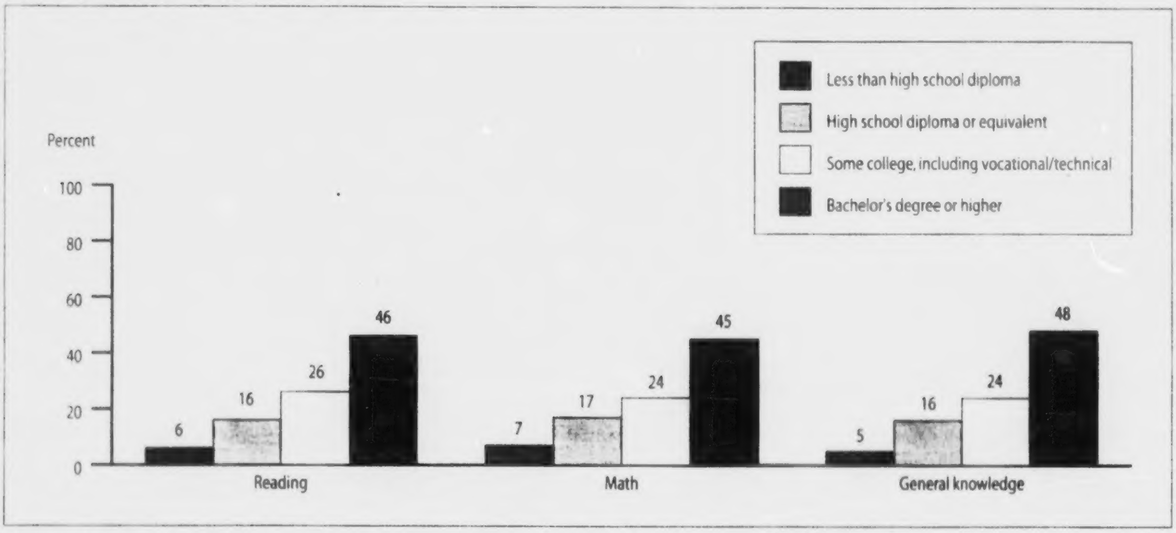
Cognitive Skills and Knowledge

Children's cognitive skills and knowledge are frequently thought of as core ingredients in the recipe for success in school. Researchers have conceived cognitive development as an extended set of multidimensional skills and proficiencies that include language/literacy, reasoning, and general knowledge (Kagan, Moore, and Bredekamp 1995). Children's language/literacy refers to both their oral communication (language) and understanding of the written word (literacy). Children's reasoning refers to their mathematical skills. The concept of general knowledge refers to children's conceptions and understandings of the world around them.

As children enter kindergarten for the first time, they differ in their cognitive skills and knowledge. The ECLS-K assessments of first-time kindergartners indicate that children's reading, mathematics, and general knowledge are related to their age as they enter kindergarten, the level of their mother's education (figure A), their family type, the primary language spoken in the home, and their race/ethnicity.

- In reading, mathematics, and general knowledge, older kindergartners (born in 1992—about to turn 6 or already 6) outperform the youngest kindergartners (born in September through December 1993—just turning 5). The older kindergartners are more likely to score in the highest quartile of the distribution of scores than the youngest kindergartners. However, some of the youngest children also score in the highest quartile (16 percent in reading, 12 percent in mathematics, and 12 percent in general knowledge). Additionally, some of the older kindergartners are scoring in the lowest quartile (15–19 percent in reading, 13–17 percent in mathematics, and 11–16 percent in general knowledge).
- Children's performance in reading, mathematics, and general knowledge increases with the level of their mothers' education. Kindergartners whose mothers have more education are more likely to score in the highest quartile in reading, mathematics, and general knowledge than all other kindergartners. However, some children whose mothers have less than a high school education also score in the highest quartile (6 percent in reading, 7 percent in mathematics, and 5 percent in general knowledge). Additionally, some

Figure A.—Percentage of first-time kindergartners scoring in the highest quartile of reading, math, and general knowledge, by maternal education: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Fall 1998.

children whose mothers have a bachelor's degree or higher are scoring in the lowest quartile (8 percent in reading, 18 percent in mathematics, and 10 percent in general knowledge).

- Children's performance in reading, mathematics, and general knowledge differs by their family type: kindergartners from two-parent families are more likely to score in the highest quartile in reading, mathematics, and general knowledge than children from single-mother families. However, some children with single mothers also score in the highest quartile (14 percent in reading, 14 percent in mathematics, and 12 percent in general knowledge). Additionally, some children from two-parent families are scoring in the lowest quartile (22 percent in reading, 21 percent in mathematics, and 20 percent in general knowledge).

In terms of their specific skills in reading and math, 66 percent of first-time kindergartners are proficient in recognizing their letters, 29 percent are proficient in understanding the beginning sounds (letter-sound relationship at the beginning of words), and about 17 percent are proficient in understanding the ending sounds (letter-sound relationship at the end of words). In math, nearly all first-time kindergartners (94 percent) are proficient in number and shape (recognizing numbers and shapes and counting to 10), 58 percent are proficient in understanding relative size (sequencing patterns and using nonstandard units of length to compare objects), and 20 percent are proficient in understanding ordinal sequence (identification of the ordinal position of an object in a sequence—e.g., fifth in line).

Social Skills

Children's social skills relate both to the quality and success of their school experiences (Meisels, Atkins-Burnett, and Nicholson 1996). Young children construct knowledge by interacting with others and their environment (Bandura 1986). In order to interact successfully in a variety of circumstances and with a variety of people, children need to possess interpersonal skills. They need to feel secure enough to join, question, and listen to their peers and adults. This report explores indicators of children's social development by looking at children's interpersonal skills and behavioral patterns as rated by their parents and teachers.

For the most part, parents and teachers report a high incidence of prosocial behaviors and a low incidence of problem behaviors. Parents report that about 82 to 89 percent of first-time kindergartners often to very often join others in play, make friends, and comfort others. Teachers report that about 75 percent of first-time kindergartners often to very often accept peer ideas and form friendships. In terms of more problematic behaviors (e.g., fighting and arguing), parents report that about 33 percent of first-time kindergartners argue with others often to very often and less than 20 percent of first-time kindergartners fight with others and easily get angry often to very often. Teacher ratings are lower, with about 10 percent of first-time kindergartners arguing with others, fighting with others, and easily getting angry often to very often. Teacher ratings of children's prosocial and problem behaviors differ by children's family type and minority status.

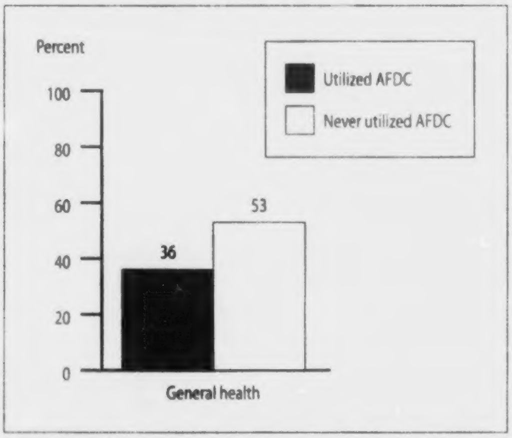
- Kindergarten teachers rate children with some characteristics of risk for school difficulty (those whose mothers have less than a high school education, whose mothers are single, or whose families have received or are receiving public assistance) as less likely than children whose mothers have at least a high school diploma, who come from two-parent families, and whose families have never utilized public assistance to accept peer ideas and form friendships.
- Reports of children's problem behaviors vary by race/ethnicity. The pattern of these differences and their magnitude depends on who is rating the children's behavior. When teachers rate the children in their classrooms, black children are more likely than white and Asian children to be seen as exhibiting higher levels of problem behaviors (arguing with others, fighting with others, getting angry easily). When parents rate their children, we see fewer differences between black and white children. Instead, we see more differences between Asian children and white, black, and Hispanic children. Asian children are less likely than children in these other groups to be seen as arguing or fighting often to very often by their parents.

Physical Health and Well-Being

Information on children's physicality helps untangle the diverse skill set children possess at entry into kindergarten. An important part of learning relates to children having enough rest, enough good foods to eat, and good physical health (Kagan, Moore, and Bredekamp 1995). The concept of physical health and well-being is broad; it not only includes a disease-free state but also having gross and fine motor skills appropriate to the child's age.

On average, first-time kindergartners are about 45 inches tall and weigh about 46 pounds. About 12 percent of boys and 11 percent of girls have a body mass index that classifies them as at risk for being overweight. According to parent reports, kindergartners are generally healthy, though their general health differs by their family type, the level of their mothers' education, and whether or not they utilized public assistance (i.e., Aid to Families with Dependent Children) (figure B). A small percentage of kindergartners

Figure B.—Percentage of first-time kindergartners who are in excellent general health, by utilization of public assistance (Aid to Families with Dependent Children [AFDC]): Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Fall 1998.

are showing signs of developmental difficulty (e.g., high activity level, low attention span).

Approaches to Learning

How children approach learning is central to their chances for success in school. Children's learning styles reflect how they address the task of learning (Kagan, Moore, and Bredekamp 1995). Children need to be able to persist at tasks, be eager to learn, and be creative in their work. These characteristics tend to manifest themselves at a relatively early age, and children demonstrate diversity in their approaches and behaviors toward learning.

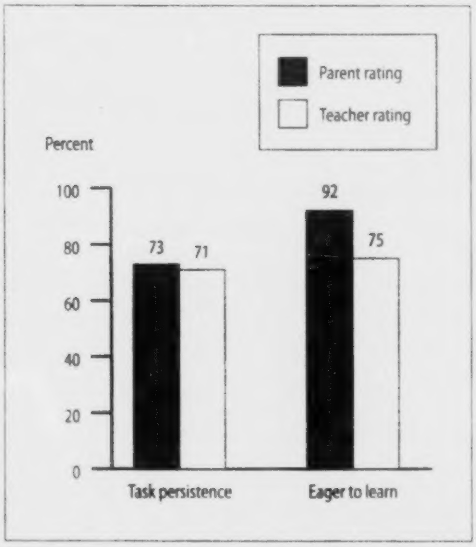
As children enter kindergarten for the first time, parents report that about 73 percent persist at tasks often to very often (figure C), about 92 percent seem eager to learn (figure C), and 85 percent demonstrate creativity in their work. Teachers are slightly more conservative in their ratings (figure C), reporting that about two-thirds to three-quarters of beginning kindergartners often to very often persist at tasks, seem eager to learn, and are able to pay attention. Teacher ratings of kindergartners' approaches to learning differ by child characteristics, such as gender, age at entry, level of mother's education, and minority status. Both parents and teachers report that girls persist at tasks more often than boys, older kindergartners (born in 1992) persist at tasks more often than the youngest kindergartners (born in September through December 1993), and children not at risk persist at tasks more often than children with certain risk factors (mother's education is less than high school, mother is single, or family has received public assistance).

The Child and the Family

The nature and frequency of family interactions relate not only to children's development but also to children's preparedness for school. The frequency with which parents interact in positive ways with their children may indicate the investment parents make in their children's education. Home activities—such as reading to the child or interacting through play—are related to children's school preparedness and chances for success in school.

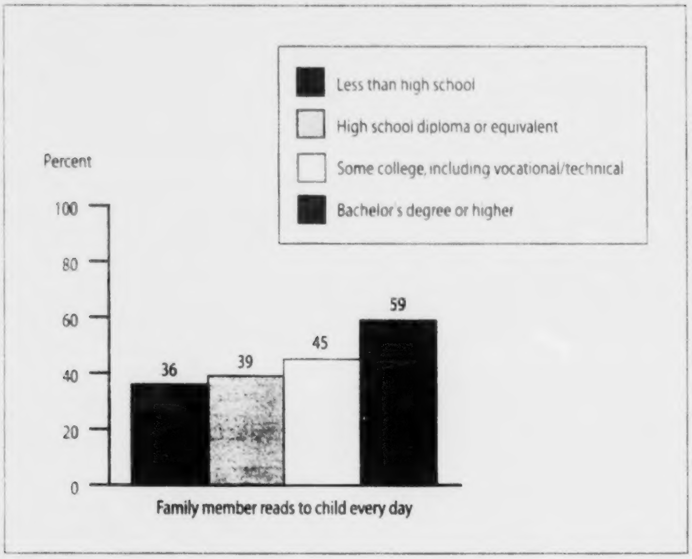
The majority of parents report having more than 25 children's books in the home, and more than half of parents report having more than five children's records, audiotapes, or CDs in the home. Nearly half of parents report a family member reading to the child or singing songs with the child

Figure C.—Percentage of first-time kindergartners rated as persisting at tasks and eager to learn often to very often, by parent and teacher report: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Fall 1998.

Figure D.—Percentage of first-time kindergartners read to every day by a family member, by maternal education: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Fall 1998.

every day. Activities such as reading to children vary by level of mother's education (figure D), family type, receipt of public assistance, and minority status.

As the labor force participation rate of mothers with young children has increased, the percentage of children receiving care from someone other than their parents has increased as well. In the 1990s, a large majority of children have been cared for on a regular basis by someone other than their parents prior to entering first grade (West, Wright, and Germino-Hausken 1995). Today, many kindergarten and primary school children receive before- and after-school care regularly from persons other than their parents (Brimhall, Reaney, and West 1999).

Prior to starting kindergarten, about four out of five first-time kindergartners received care on a regular basis from someone other than their parents. Upon entering kindergarten, about half of children currently receive care on a regular basis before or after school from someone other than their parents. Both the care children received prior to kindergarten and their current care (e.g., relative, nonrelative, center-based) vary by characteristics such as level of mother's education and child's race/ethnicity status.

At kindergarten entry, children whose mothers have less than a high school education are more likely to receive before- and/or after-school care from a relative than from a nonrelative or center-based provider. In contrast, kindergartners whose mothers have a college education are more likely to receive care in a center-based setting than in either of the two home-based settings. At kindergarten entry, black children are more likely than white, Asian, or Hispanic children to receive before- and/or after-school care.

Summary

While first-time kindergartners are similar in many ways, this report demonstrates that differences exist in children's skills and knowledge in relation to their characteristics, background, and experiences. The report adds to our understanding of the diversity of young children's skills and knowledge. Even as they are just beginning their formalized educational experience, children are different. They demonstrate differences in their cognitive skills and knowledge, social skills, health, and approaches to learning, and bring with them differences in their home educational experiences and environments. This report is highly descriptive in nature, presenting a broad array of information on children's status as they begin their journey through school. Future reports based on ECLS-K will take a more analytical approach and examine specific issues in more depth. This report and future data from ECLS-K will help to inform researchers, practitioners, educators, parents, and policymakers on issues concerning young children's education during the elementary grades.

Future Directions

The findings in this report bring to light some areas for further investigation, and some interesting patterns emerge across domains. For instance, differences exist in parent and teacher perceptions of children's prosocial skills, problem behaviors, and approaches to learning. Primarily, we presented the data by looking at parent perceptions in relation to child and family characteristics and teacher perceptions in relation to child and family characteristics. However, future analyses can compare the similarities and the differences in parent and teacher perceptions of the same child. For example, in terms of approaches to learning, specifically children's eagerness to learn, the racial/ethnic differences seem much greater in the teacher ratings than in the parent ratings in the aggregate.

Furthermore, in this report, we look at the constructs by a specific set of child and family characteristics (including child's sex, age at entry into kindergarten, race/ethnicity, and maternal education). Future reports can take a different perspective, and analyze the constructs in terms of additional family characteristics and school characteristics. For example, the data can be analyzed in terms of preschool attendance, kindergarten program type (e.g., full day/part day), and school type (e.g., public/nonpublic). These types of analysis may have policy implications.

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Data source: The NCES Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Fall 1998.

For technical information, see the complete report:

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To obtain the complete report (NCES 2000–070, revised), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202-512-1800).

Invited Commentary: *America's Kindergartners:* An Initial Look at the Kindergarten Class of 1998–99

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

America's Kindergartners, the first report of findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), is a most welcome and much-needed addition to the nation's knowledge base. Since the National Education Goals were first set in 1989, one of the biggest dilemmas faced by professionals and policymakers was the lack of valid data to address the nation's progress toward achieving the first national goal: "By the year 2000, all children will start school ready to learn." It is now the year 2000, and although we can neither say that the goal has been achieved nor make accurate comments on how far we've come in the past decade, with this report we now at least have baseline data giving us a picture of the varying competencies of children upon entry into America's kindergartens.

The greatest benefit of this study is that it provides the first-ever look at a nationally representative sample of kindergarten children upon entry into school. As it evolves over time, this study will give us answers to questions about which there has been anecdotal evidence at best and speculation at worst. For instance, until now the data most often quoted on the subject of school readiness were from a highly informal and unscientific survey of kindergarten teachers by Ernest Boyer in which more than one-third of children were said to be "unready" (Boyer 1991). Even this first report of findings indicates that such a statement is not just a vast oversimplification but is actually inaccurate. ECLS-K will fill the vital need for information to guide decisionmakers on this important topic.

A second strength and benefit of the study is its use of a comprehensive definition of "school readiness" drawing on the multidimensional construct as understood by professionals in child development and early education and as used by the Goals Panel and many states in their readiness initiatives. In keeping with its comprehensive definition, the study used multiple measures and sources of information, which not only make the findings more reliable and robust (since 4- and 5-year-old children are notoriously challenging research subjects), but also permit additional levels of analysis that will be essential if the study is to make a real contribution to improving the lives of children. For example, differences in parents' and teachers' perceptions of their children's behavior—which in this report are only described—can be further analyzed and used to inform both teachers and parents.

The findings confirm much of what we previously thought but also challenge some of our frequent assumptions. Clearly, the findings support the perception of many kindergarten teachers that the children in their classes are increasingly diverse. The full extent of individual diversity cannot be gleaned from these aggregated data. However, the rich database will permit complex analyses, providing perhaps the best opportunity ever to examine relationships among variables of children's experience and their competencies.

Taken at face value, the study again finds the oft-reported differences in achievement among children with various risk factors (such as a single-parent family, low income, and low level of mother's education) or from different racial and ethnic groups. Given that minimal analysis has been done on the relationships among these variables, the findings should be taken with extreme caution. Family risk factors tend to correlate with one another. For example, having a single parent is often correlated with lower family income or lower levels of maternal education. The presence of multiple risk factors has more impact than any particular factor alone. Similarly, African-American and Hispanic families are more likely to experience poverty or to have lower levels of maternal education in this country.

Nevertheless, the study demonstrates that many differences among groups are already present upon entry into school (although they tend to increase during the school years). This finding substantiates the fact that kindergarten is too late to intervene in the educational trajectory for many children at risk. Additional support is required not only for preschool and Head Start, but also for intervention programs that target younger children and their parents, such as Early Head Start and high-quality child care for infants and toddlers.

One finding that is not surprising at all is that, in general, younger children perform less well than older children. This is not surprising given that the age difference at kindergarten entry may equal a year of experience, experience is essential for learning, and much of what is measured in the study is developmental in nature. In the past, the reality of age effects has led some policymakers to raise entrance ages and many parents to keep their children out of kindergarten. Advice to policymakers: It would be unfortunate and regressive if this study reignited the entrance age arguments. The study substantiates that diversity among kindergartners is the norm and that age is only one dimension of it. The study found that some of the youngest children were in the higher quartiles of performance, proving that age alone is an inadequate criterion for judging school readiness.

Now to the relatively surprising findings. For the first time, on a large scale, the study gives us a picture of "what children know and can do" at kindergarten entry. These data strongly suggest that most children are better prepared to succeed in school than many have thought. But clearly more needs to be done for children who have multiple risk factors in their experience. These are clearly the children who most need to be in school. Therefore, the results of this study should not be used to set standards for kindergarten entry, but rather to improve early intervention, inform curriculum development, and enhance the professional development of teachers.

Despite the differences in achievement identified between groups, the study finds that there are some children who at this early age "are beating the odds"; they are in the top quartile on various measures despite the presence of risk factors in their backgrounds. Further analysis of this subgroup should prove fruitful in identifying the mediating factors in their environments, especially those that have implications for policy or practice in early childhood settings. The study has the great potential of following these children over the course of their elementary schooling to see what critical factors do or do not continue to help them beat society's expectations.

Such an initial report, which by its nature is descriptive rather than analytic, runs the risk of leading to overly simplistic conclusions. Such conclusions would do an injustice to the study as well as to its subjects, since both are far more complex that this initial report reveals. But future analyses have great potential to further enlighten us all.

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Invited Commentary: The Class of 2011 Embarks: Perspectives on *America's Kindergartners*

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Members of the high school class of 2011 have already embarked on their school careers. When we reach the beginning of the second decade of this new century, we will be able to look back to the wealth of data in *America's Kindergartners* for multiple insights into the expectations that accompanied these students' entry into kindergarten. Thanks to the leadership of Jerry West and staff at the National Center for Education Statistics (NCES), along with dozens of other contributors—and what must have been near-Herculean efforts over the last 6 years—we now have the first-ever profile of American children as they enter kindergarten. Several features of these data are particularly significant in the year 2000, while the importance of other features will emerge over time.

The profile of school readiness these data provide is particularly important in two respects—for understanding the levels of children's early development and learning at entry into kindergarten and for advancing how we conceptualize the construct of "readiness." The data tell a fascinating story about the breadth and diversity of children's abilities upon entering school. At the same time, this report demonstrates that we have not yet resolved all the methodological issues related to measuring young children's development and learning; in this regard, the report is useful for pointing us along the next steps toward improving our measurements.

Understanding Children's Early Development and Learning

These comprehensive kindergarten-entry data, based on a nationally representative sample of children, have the potential to stimulate new research that will inform our understanding of the relative importance of the several dimensions of learning and development. In this first report, NCES has focused its analyses on descriptions of the diversity of the entering students in relative terms. We learn, for example, that children score higher on many dimensions if they are older, have mothers with higher levels of education, live in two-parent families, and are part of families that have not received and are not receiving public assistance. These same demographic variables frequently are found to be important predictors of school achievement in the higher grades; it is now clear, if anyone had doubts, that these differences are present at the very beginning of formal schooling. It remains for future analyses to tell us how schools will cope with this diversity and whether they will be able to alter the expected trajectories that demographic characteristics so often foretell: What will happen to at-risk students in the class of 2011? Will those in future classes meet the same fate?

What will happen will depend, in part, on how we act on the messages within *America's Kindergartners*. The report makes clear that there is considerable diversity even in terms of the extent to which demographics relate to what children know and can do when they begin kindergarten. Even though, on average, kindergartners whose mothers have more education do better in math, 7 percent of children whose mothers have less than a high school education score in the *highest* quartile in mathematics. Even though, on average, kindergartners from one-parent families score lower in reading, 14 percent of children with single mothers score in the *highest* quartile on the reading assessments. Even though the average kindergartner who is older when entering kindergarten scores higher in general knowledge, 12 percent of the youngest entering kindergartners score in the *highest* quartile on those measures. Can we learn how those children beat the odds? Can we learn what in the lives or circumstances of those children led them to perform so much better than expected? Attempting to answer these questions may make it possible for the story of "America's kindergartners in 2000," or in 2002 or 2004, to play out differently from the story of those who entered in 1998.

Conceptualizing Readiness

Five years ago, the Technical Planning Group for the first national education goal published a landmark analysis of the dimensions of children's development and learning (Kagan, Moore, and Bredekamp 1995). Up until then, local educators, state and federal policymakers, and parents conceptualized readiness in narrow terms—as, in many quarters, they still do—with so-called academic skills being the first ones brought to mind by the term "readiness." However, it is now increasingly recognized that children will be successful in school only if they begin with a broad array of knowledge, skills, behaviors, and attitudes (Love, Aber, and Brooks-Gunn 1994). *America's Kindergartners* is the first substantial data collection and analysis that takes a comprehensive view of school readiness that is largely aligned with the vision of the first national education goal.

In breaking new ground in this way, NCES suggests that readiness has four dimensions: cognitive skills and knowledge, social skills, physical health and well-being, and approaches to learning. Language and literacy, which constituted a fifth dimension for the Goal One Technical Planning Group, is encompassed by cognitive skills and knowledge in the NCES framework. The Goal One Technical Planning Group also stressed the importance of three conditions that support readiness: access to quality preschool programs, parents as their child's first teacher, and receipt of appropriate nutrition and health care. *America's Kindergartners* addresses these supporting conditions by presenting data on the child care or preschool experiences children have had before kindergarten and on child and family interactions (including parents reading to their children).

So, do we now know how "ready" America's children are when they begin kindergarten? Not exactly. We do know, for example, that first-time kindergartners are generally healthy, that only about 10 percent are seen by their teachers as often to very often exhibiting such problem behaviors as easily getting angry, that 66 percent are proficient in recognizing their letters, that 29 percent understand beginning sounds of words, that almost all (94 percent) are proficient in numbers and shapes, and that 71 percent are seen by their teachers as often to very often persisting at tasks. We do not know, however, what the schools expect of these children; nor do we know how their new teachers respond to these levels of behavior and performance. Those who expected this report to tell us whether, "by the year 2000, all children in American will start school ready to learn," may be disappointed. But for many of us who have been struggling with conceptualizing "readiness," the report strikes the appropriate balance by focusing on the dimensions of children's learning and development without entering into the fray of the readiness debate.

Measurement Issues

America's Kindergartners also demonstrates that a full conceptualization of readiness requires multiple measurement approaches and the incorporation of multiple perspectives in order to obtain a complete picture of the extent to which children may be prepared to succeed in school. Data come from three sources: direct performance assessments of children (as in the assessments of reading, general knowledge, and mathematical concepts), ratings by teachers (on such dimensions as prosocial behaviors and task persistence), and ratings by parents (also on such dimensions as prosocial behaviors and task persistence). One of these methods alone could not provide the comprehensive picture of children's development and learning that this report displays. At the same time, however, we must realize that all measurement approaches do not provide the same type of information.

Direct assessments can give an absolute measure of a construct (for example, whether or not a child can identify the ordinal position of an object in a sequence). Teacher and parent ratings, on the other hand, provide assessments based on the adults' judgments. For example, children are rated as "often" or "very often" eager to learn, or teachers and parents rate children as "often" or "very often" persisting at tasks—with these ratings made in relation to other children the teachers and parents know. Our understanding of the social skills and approaches to learning of America's kindergartners is largely limited to such ratings. The existence of these data in a national data set is a huge step forward, yet we will be able to know and understand even more about children's social skills and approaches to learning when direct assessments tell us, for example, that when children are presented with standard tasks, 75 percent demonstrate task persistence. Only then will our profile of children's performance in their approaches to learning or social skills parallel our profile of their achievements in cognitive development, language, and general knowledge.

Conclusions and Recommendations

Throughout this commentary, I have invoked the notion of school readiness even though NCES did not claim that its assessments provide such a measure. I have done so because it seems likely that many readers will interpret these findings as evidence of the extent to which children are or are not prepared to succeed in school. In fact, the authors of *America's Kindergartners* are appropriately cautious in their interpretations of the data. They focus on the relative features of the data—the extent to which entering kindergartners vary along all dimensions of learning and development. Future analyses will undoubtedly address the meaning and importance of the absolute levels. I hope that we will soon learn more about such questions as these: "Given the nature and quality of the school contexts in which the new students find themselves, how well can children with different levels of cognition and knowledge, social skills, physical health and well-being, and approaches to learning be expected to perform?" "How do the varying extent and quality of pre-kindergarten program experiences contribute to success in school?" and "How do variations in school contexts mediate children's performance as they move through the early elementary grades?"

With the publication of *America's Kindergartners*, policymakers, educators, and parents must adopt a comprehensive view of school readiness. The stage is now set not only for describing the diversity among entering kindergartners along the critical dimensions of their learning and development, as this report does, but for analyzing the causes and consequences of this diversity, as future reports may do.

Finally, the research accomplishments demonstrated in *America's Kindergartners* must not lead to complacency in our approaches to measuring children's early learning and development. In a number of key areas—most notably, social skills and approaches to learning—we still depend far more than we should on the judgment of teachers and parents. As valuable as these perceptions are for understanding children's development, we must continue to seek progress in direct assessment methods that will provide the same measurement rigor we have when assessing cognitive and language skills.

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EARLY CHILDHOOD EDUCATION

Home Literacy Activities and Signs of Children's Emerging Literacy: 1993 and 1999
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Home Literacy Activities and Signs of Children's Emerging Literacy: 1993 and 1999

Christine Winquist Nord, Jean Lennon, Baiming Liu, and Kathryn Chandler

This article was originally published as a Statistics in Brief report. The sample survey data are from the NCES National Household Education Survey (NHES). Technical notes and standard errors from the original report have been omitted.

Children begin the process of learning to read long before they enter formal schooling (Sonnenschein, Brody, and Munsterman 1996; Teale and Sulzby 1989). Families, and parents in particular, play an important part in this process. For decades, research has shown that children whose parents read to them become better readers and do better in school (Snow, Burns, and Griffin 1998; Saracho 1997; Moss and Fawcett 1995). But reading to children is not the only activity that helps children become readers and to do better in school. Activities such as telling stories and singing songs may also encourage the acquisition of literacy skills (National Education Goals Panel 1997; Sonnenschein, Brody, and Munsterman 1996; Moss and Fawcett 1995; Glazer 1989).

Why is it that home activities such as reading to children, telling them stories, and singing with them help them learn? Research suggests that reading and storytelling stimulate the imagination, help to increase children's vocabularies, introduce them to components of stories (such as character, plot, action, and sequence), and provide them with information about the world around them (National Education Goals Panel 1997; Moss and Fawcett 1995). Singing songs probably also encourages a love of language and the rhythms of language (Glazer 1989). It also encourages phonological awareness (that is, awareness of the sounds and parts of language), which can be an important predictor of later literacy learning (Bryant et al. 1990; Maclean, Bryant, and Bradley 1987). Moreover, activities such as these are usually very child-centered, are conducted in a relaxed atmosphere, and allow for a warm, positive interaction between children and their parents (Sonnenschein, Brody, and Munsterman 1996; Strickland and Taylor 1989). Research suggests that the quality of parent-child interactions is important for children's development of literacy (Saracho 1997).

Goal One of the National Education Goals recognizes the importance of family-child engagement in literacy activities to children's learning and readiness for school. The goal suggests that for all children in America to start school ready to learn, parents need to devote time each day to teaching them.

This brief report presents information on the extent to which families are engaged in literacy activities with their 3- to 5-year-olds who are not yet enrolled in kindergarten. It also presents information on signs of emerging literacy, such as whether children recognize letters, can write their own names, or read or pretend to read. This information is shown for selected child, parent, and family characteristics. Some of these characteristics, such as low parent education, are often used to identify children as being at risk for school failure. The report examines changes in both home literacy activities that families engage in and signs of children's emerging literacy between 1993 and 1999. During this period, substantial research, policy, and media attention has been devoted to the importance of family involvement in children's learning.[1] The report then examines the association between home literacy activities and signs of emerging literacy in 1999.

The data used in this report are from the 1993 and 1999 National Household Education Surveys (NHES:1993 and NHES:1999). These data are based on reports of the parent most knowledgeable about the child, usually the child's mother. It is important to acknowledge that parents may overestimate both their involvement in home literacy activities and their children's skills because they recognize that such activities and skills are socially desirable. The tendency for respondents to give socially desirable responses is one source of nonsampling error in surveys.

Home Literacy Activities

Families' engagement in literacy activities, 1999

Families have gotten the message about the importance of reading to their young children. Eighty-one percent of children ages 3 to 5 years in 1999 who were not yet enrolled in kindergarten were read to three or more times in the last week by a family member (table 1). Many families are also engaging in other literacy activities with their 3- to 5-year-old children. Fifty percent of children ages 3 to 5 years not yet in kindergarten were told a story three or more times in the last week by a family member. Sixty-four percent were taught letters, words, or numbers frequently by their families. Nearly half (49 percent) were taught songs or music three or more times in the last week, and more than a third (39 percent) did arts and crafts with their families three or more times in the last week. More than a third (36 percent) of preschool 3- to 5-year-olds visited the library in the last month with a family member. These percentages show that many families are actively involved in helping their young children learn.

Families' engagement in literacy activities by child, parent, and family characteristics, 1999

The percentage of preschool-aged children who are read to, told stories, or engage in other literacy activities with their families varies by characteristics of the children, their parents, and their families. For example, 3-year-olds were more likely than 4-year-olds or 5-year-olds to have been taught songs or music three or more times in the last week by their families (57 percent of 3-year-olds compared to 43 percent of 4-year-olds and 38 percent of 5-year-olds) (table 1). However, they were less likely than 4- and 5-year-olds to have visited the library with their families in the last month (33 percent, vs. 39 and 41 percent, respectively).

There are also differences in families' engagement in literacy activities with their children by the children's race and ethnicity. Hispanic children and black, non-Hispanic children were less likely than white, non-Hispanic children to have been read to by (61 percent and 71 percent vs. 89 percent), told stories by (40 percent and 45 percent vs. 53 percent), or done arts and crafts with (32 percent and 28 percent vs. 44 percent) their families three or more times in the last week. There are no statistically significant differences, however, between black, non-Hispanic children and white, non-Hispanic children in the proportion who were taught letters, words, or numbers three or more times in the last week or who visited the library in the last month with their families. Hispanic children, though, are significantly less likely than either white, non-Hispanic or black, non-Hispanic children to have done these activities that frequently with their families. For example, 25 percent of Hispanic children visited the library in the past month with their families compared to 39 percent of white non-Hispanic children and 35 percent of black, non-Hispanic children.

A number of risk factors believed to have an impact on the development of literacy skills are shown in table 1. These include having a mother whose home language is other than English, having a mother with less than a high school education, living with fewer than two parents, living in a family with an income below the poverty threshold, and having a race/ethnicity other than white, non-Hispanic. Having a minority race/ethnicity is not a risk factor in the same sense as poverty or the other risk factors that can have a direct impact on children's development and learning. However, it remains the case that, on average, minorities in the United States have fewer opportunities and are faced with greater obstacles than are nonminorities. These realities of American life place minorities at educational risk.

Generally, the findings in this report show that children with one or more of these risk factors are less likely than other children to have frequently engaged in literacy activities with their families. This is especially true for reading to children, telling them stories, doing arts and crafts with them, and visiting the library with them. The differences between those at risk and those not at risk are smaller for teaching children letters, words, or numbers and teaching them songs or music. For example, 69 percent of children living in families with incomes below the poverty threshold were read to three or more times in the last week compared to 85 percent of children living above poverty. But children living in families with incomes below the poverty threshold were just as likely as children not living in poverty to have been taught songs or music three or more times in the last week (49 percent each). Likewise, 61 percent of children whose mothers had less than a high school education were read to three or more times in the last week compared to over 90 percent of children whose mothers' highest education was college graduate or graduate or professional school.

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[1] For example, the National Education Goals Panel began releasing annual reports in 1990. Every year with the release of these reports, media attention is devoted to the importance of families being active participants in their children's learning and of their reading to their young children. In addition, numerous programs devoted to family literacy, including the U.S. Department of Education's Even Start program, were initiated in the late 1980s and early 1990s (Saracho 1997).

With the exception of being taught songs or music, children with multiple risk factors are less likely than those with none or only one risk factor to engage in literacy activities frequently with their families. Twenty-seven percent of children with two or more risk factors had visited a library in the past month compared to 44 percent of children with

Table 1.—Percentage of 3- to 5-year-old children not yet enrolled in kindergarten who have participated in home literacy activities with a family member three or more times in the past week, by selected child and family characteristics: 1993 and 1999

	Children (in thousands)		Percent participating in specific activities					
			Read to[1,2]		Told a story[2]		Taught letters, words, or numbers[2]	
Characteristics	1993	1999	1993	1999	1993	1999	1993	1999
Total	8,579	8,549	78	81	43	50	58	64
Age								
3 years old	3,889	3,827	79	81	46	52	57	65
4 years old	3,713	3,722	78	81	41	49	58	63
5 years old	976	1,001	76	79	36	44	58	64
Sex								
Male	4,453	4,363	77	80	43	49	58	64
Female	4,126	4,187	79	82	43	50	58	65
Race/ethnicity								
White, non-Hispanic	5,902	5,296	85	89	44	53	58	65
Black, non-Hispanic	1,271	1,258	66	71	39	45	63	68
Hispanic	1,026	1,421	58	61	38	40	54	55
Other	381	574	73	81	50	53	59	69
Mother's home language[3]								
English	7,805	7,599	81	84	44	52	58	66
Not English	603	683	42	48	36	31	52	45
Mother's highest education[3]								
Less than high school	1,036	952	60	61	37	36	56	60
High school diploma or equivalent	3,268	2,556	76	76	41	48	56	63
Vocational education or some college	2,624	2,586	83	85	45	52	60	67
College degree	912	1,455	90	91	48	55	56	65
Graduate/professional training or degree	569	734	90	93	50	54	60	62
Mother's employment status[3]								
Employed	4,486	5,058	79	81	44	50	57	65
Unemployed	594	452	71	70	43	47	66	63
Not in labor force	3,328	2,773	79	84	43	50	58	64
Family type								
Two parents	6,226	5,997	81	85	44	52	57	64
None or one parent	2,353	2,553	71	72	41	44	59	65
Poverty status								
Above poverty threshold	6,323	6,575	82	85	44	52	57	66
Below poverty threshold	2,256	1,975	68	69	39	42	59	58
Number of risk factors[3,4]								
None	4,175	3,758	87	91	43	54	56	64
One	1,645	1,856	82	83	47	57	62	69
Two or more	2,588	2,669	64	66	40	40	59	60

See footnotes on second page of this table.

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Table 1.—Percentage of 3- to 5-year-old children not yet enrolled in kindergarten who have participated in home literacy activities with a family member three or more times in the past week, by selected child and family characteristics: 1993 and 1999—Continued

	Children (in thousands)		Percent participating in specific activities					
			Taught songs or music[2]		Did arts and crafts[2]		Visited a library[5]	
Characteristics	**1993**	**1999**	**1993**	**1999**	**1993**	**1999**	**1993**	**1999**
Total	8,579	8,549	41	49	34	39	38	36
Age								
3 years old	3,889	3,827	45	57	34	41	34	33
4 years old	3,713	3,722	39	43	33	38	41	39
5 years old	976	1,001	33	38	33	35	38	41
Sex								
Male	4,453	4,363	38	47	31	38	38	35
Female	4,126	4,187	44	51	36	40	38	38
Race/ethnicity								
White, non-Hispanic	5,902	5,296	40	49	36	44	42	39
Black, non-Hispanic	1,271	1,258	49	51	28	28	29	35
Hispanic	1,026	1,421	39	45	25	32	26	25
Other	381	574	34	52	32	35	43	43
Mother's home language[3]								
English	7,805	7,599	42	49	34	40	39	39
Not English	603	683	33	43	23	25	26	19
Mother's highest education[3]								
Less than high school	1,036	952	40	44	25	29	22	18
High school diploma or equivalent	3,268	2,556	41	50	30	38	31	30
Vocational education or some college	2,624	2,586	42	51	38	40	44	40
College degree	912	1,455	39	48	37	43	55	50
Graduate/professional training or degree	569	734	44	46	42	47	59	48
Mother's employment status[3]								
Employed	4,486	5,058	41	48	33	37	39	36
Unemployed	594	452	49	49	34	39	37	29
Not in labor force	3,328	2,773	40	51	34	43	37	40
Family type								
Two parents	6,226	5,997	40	48	35	41	41	40
None or one parent	2,353	2,553	44	50	30	34	30	29
Poverty status								
Above poverty threshold	6,323	6,575	40	49	36	41	41	40
Below poverty threshold	2,256	1,975	45	49	27	34	28	24
Number of risk factors[3,4]								
None	4,175	3,758	39	48	37	45	46	44
One	1,645	1,856	43	50	36	38	35	37
Two or more	2,588	2,669	44	49	26	32	28	27

[1] In 1993, respondents were asked about reading frequency in one of two versions of the survey question. The percentages presented in the table are for all of the respondents who answered three or more times on either version of the questions.

[2] Refers to activities done three or more times in the past week.

[3] Excludes 86 children in 1993 and 106 children in 1999 who did not have a mother (birth, adoptive, step, or foster) residing in their household and also did not have a female respondent on the telephone.

[4] Risk factors are defined as having a race/ethnicity other than white, non-Hispanic; mother's home language is other than English; mother's highest education is less than high school; family type is none or one parent in the household; and poverty status is below the poverty threshold.

[5] Refers to visiting a library at least once in the past month.

NOTE: Because of rounding, numbers of children may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "School Readiness Parent Interview," 1993, and "Parent Interview," 1999.

no risk factors. Sixty-six percent of children with two or more risk factors were read to three or more times in the last week compared to 91 percent of children with no risk factors. Even though children with multiple risks are less likely than other children to be read to frequently, it is noteworthy that a majority of them are being read to frequently by their families. Thus, even families facing difficult circumstances are making an effort to help their children learn.

Changes in families' engagement in literacy activities, 1993 to 1999

In general, children in 1999 are more likely than those in 1993 to engage in literacy activities with family members. The one exception is that they are no more likely than their 1993 counterparts to have visited a library in the past month with a family member. They are more likely than children in 1993, however, to have been read to (81 percent vs. 78 percent), told a story (50 percent vs. 43 percent), and taught letters, words, or numbers (64 percent vs. 58 percent) three or more times in the last week (table 1). They are also more likely than children in 1993 to have been taught songs or music (49 percent vs. 41 percent) and to have done arts and crafts with a family member (39 percent vs. 34 percent) three or more times in the last week.

The vast majority of statistically significant changes observed between 1993 and 1999 are for those children who would generally be considered less at risk for school failure. That is, most of the increases in literacy activities are for white, non-Hispanic children from two-parent households, with family incomes above the poverty threshold, and with mothers who speak English at home. For example, the percentage of white, non-Hispanic children who were read to three or more times in the last week increased from 85 percent in 1993 to 89 percent in 1999. Similarly, the percentage who were taught letters, words, or numbers three or more times in the last week increased from 58 percent in 1993 to 65 percent in 1999. Among black, non-Hispanic children, the percentage who were read to frequently appears to have risen from 66 percent in 1993 to 71 percent in 1999. This difference, however, is not statistically significant. Similarly, the percentage who were taught letters, words, or numbers three or more times in the last week appears to have risen from 63 percent in 1993 to 68 percent in 1999. Again, however, this change is not statistically significant. There are also no statistically significant increases in families' engagement in literacy activities for children with two or more risk factors. For example, 64 percent of children in 1993 with two or more risk factors were read to three or more times in the last week as were 66 percent of such children in 1999.

Emerging Literacy Skills

Signs of emerging literacy, 1999

A substantial proportion of children ages 3 to 5 years who are not yet enrolled in kindergarten show signs of emerging literacy (table 2). Twenty-four percent already recognize all the letters of the alphabet, 57 percent can count to 20 or higher, 51 percent can write their own names, and 74 percent either read or pretend to read storybooks. Most children this age, of course, only pretend to read. Only 3 percent of 3- to 5-year-olds not yet in kindergarten actually read. Overall, 39 percent of 3- to 5-year-olds not yet in kindergarten are reported to have at least three of these four skills.

Signs of emerging literacy by child, parent, and family characteristics, 1999

Not surprisingly, older children are more likely than younger ones to show signs of emerging literacy. Fifteen percent of 3-year-olds not enrolled in kindergarten recognize all the letters of the alphabet compared to 44 percent of 5-year-olds not enrolled in kindergarten (table 2). Similarly, 24 percent of 3-year-olds can write their own names compared to 87 percent of 5-year-olds.

There are some differences in the percentage of 3- to 5-year-old children who show signs of emerging literacy by the children's race and ethnicity. Hispanic children are significantly less likely than non-Hispanic children to recognize all the letters of the alphabet. Fourteen percent of Hispanic children can do so compared with 25 percent of white, non-Hispanic; 25 percent of black, non-Hispanic; and 30 percent of children of some other race or ethnicity. Hispanic children are also much less likely than non-Hispanic children to be able to count to 20 or higher. Forty-one percent of Hispanic children can do so compared to 60 percent of white, non-Hispanic children; 60 percent of black, non-Hispanic children; and 59 percent of children of some other race or ethnicity. Black, non-Hispanic children are less likely than white, non-Hispanic children to read or to pretend to read (66 percent vs. 79 percent), but they are as likely as white, non-Hispanic children to recognize all the letters of the alphabet and to be able to count to 20 or higher.

Young children living in families with incomes below the poverty threshold are less likely than other children to show signs of emerging literacy. Ten percent of 3- to 5-year-old

Table 2.—Percentage of 3- to 5-year-old children not yet enrolled in kindergarten with specific reported school readiness skills, by selected child and family characteristics: 1993 and 1999

			Percent with specific skills									
	Children (in thousands)		Recognizes all letters		Counts to 20 or higher		Writes name		Reads or pretends to read storybooks[3]		Has 3–4 skills	
Characteristics	1993	1999	1993	1999	1993	1999	1993	1999	1993	1999	1993	1999
Total	8,579	8,549	21	24	52	57	50	51	72	74	35	39
Age												
3 years old	3,889	3,827	11	15	37	41	22	24	66	70	15	20
4 years old	3,713	3,722	28	28	62	67	70	70	75	76	49	50
5 years old	976	1,001	36	44	78	81	84	87	81	77	65	69
Sex												
Male	4,453	4,363	19	21	49	54	47	47	68	70	32	35
Female	4,126	4,187	23	27	56	60	53	56	76	77	39	43
Race/ethnicity												
White, non-Hispanic	5,902	5,296	23	25	56	60	52	54	76	79	39	42
Black, non-Hispanic	1,271	1,258	18	25	53	60	45	49	63	66	31	35
Hispanic	1,026	1,421	10	14	32	41	42	43	59	57	22	25
Other	381	574	22	30	49	59	52	57	70	79	36	48
Mother's home language[1]												
English	7,805	7,599	22	25	55	60	51	53	73	76	37	41
Not English	603	683	9	8	24	25	38	34	52	45	17	14
Mother's highest education[1]												
Less than high school	1,036	952	8	7	30	36	40	32	55	53	19	15
High school diploma or equivalent	3,268	2,556	17	17	48	48	48	49	70	69	30	31
Vocational education or some college	2,624	2,586	23	25	59	60	51	52	79	79	39	42
College degree	912	1,455	31	35	68	73	58	61	84	84	52	54
Graduate/professional training or degree	569	734	39	40	68	73	59	64	83	83	55	57
Mother's employment status[1]												
Employed	4,486	5,058	23	24	57	59	52	53	75	75	39	40
Unemployed	594	452	17	15	41	53	46	39	67	64	29	32
Not in labor force	3,328	2,773	18	24	49	54	47	50	68	73	32	38
Family type												
Two parents	6,226	5,997	22	26	54	58	51	53	74	75	37	41
None or one parent	2,353	2,553	18	19	49	54	47	48	65	69	31	33
Poverty status												
Above poverty threshold	6,323	6,575	24	28	57	62	53	56	74	77	40	45
Below poverty threshold	2,256	1,975	12	10	41	39	41	37	64	63	23	19
Number of risk factors[1,2]												
None	4,175	3,758	25	29	60	65	53	57	77	81	41	47
One	1,645	1,856	21	26	52	58	54	54	73	77	37	40
Two or more	2,588	2,669	14	15	42	46	42	41	62	62	25	26

[1] Excludes 86 cases in 1993 and 106 cases in 1999 who did not have a mother (birth, adoptive, step, or foster) residing in their household and also did not have a female respondent on the telephone.

[2] Risk factors are defined as having a race/ethnicity other than white, non-Hispanic; mother's home language is other than English; mother's highest education is less than high school; family type is none or one parent in the household; and poverty status is below the poverty threshold.

[3] Includes telling connected stories when pretending to read and reading actual words.

NOTE: Because of rounding, numbers of children may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "School Readiness Parent Interview," 1993, and "Parent Interview," 1999.

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children living in poverty recognize all the letters of the alphabet compared to 28 percent of nonpoor children. Similarly, 39 percent of children living in poverty can count to 20 or higher compared to 62 percent of nonpoor children. Nineteen percent of poor children show three or more signs of emerging literacy compared to 45 percent of nonpoor children. Likewise, children with two or more educational risk factors are less likely than other children to show signs of emerging literacy. Fifteen percent of children with two or more risk factors recognize all the letters of the alphabet compared to 29 percent of children with no risk factors. Similarly, 26 percent of children with two or more risk factors show at least three signs of emerging literacy compared to 47 percent of children with no risk factors.

Changes in signs of emerging literacy, 1993 to 1999

According to parental reports, 3- to 5-year-old children not yet in kindergarten in 1999 are more likely than their 1993 counterparts to be able to recognize all the letters of the alphabet (24 percent vs. 21 percent) and to be able to count to 20 or higher (57 percent vs. 52 percent) (table 2). Children in 1999 are also more likely than children in 1993 to have three or four literacy skills (39 percent vs. 35 percent). However, children in 1999 are no more likely than their 1993 counterparts to be able to write their own names, or to read or pretend to read.

As with families' engagement in literacy activities, the majority of statistically significant changes observed between 1993 and 1999 are for children who are less at risk for school failure. For example, among nonpoor children the percentage who recognized all the letters of the alphabet increased from 24 percent in 1993 to 28 percent in 1999. Similarly, the percentage of nonpoor children who could count to 20 or higher increased from 57 percent in 1993 to 62 percent in 1999. Overall, the percentage of nonpoor children who showed at least three of the four signs of emerging literacy increased from 40 percent in 1993 to 45 percent in 1999. The percentage of poor children exhibiting these emerging literacy signs did not increase at all between 1993 and 1999. Similarly, children in 1999 whose mothers' home language was English were more likely than their 1993 counterparts to recognize all the letters of the alphabet, to count to 20 or higher, to read or pretend to read, and to show at least three of the four literacy skills. On the other hand, children in 1999 whose mothers spoke a language other than English at home were no more likely than their 1993 counterparts to recognize all the letters of the alphabet, to count to 20, to read or pretend to read, or to show three or more emerging literacy skills.

Association Between Family Literacy Activities and Children's Emerging Literacy, 1999[2]

Families are helping their children prepare for school by engaging in literacy activities with them at home. In 1999, 26 percent of children who were read to three or more times in the last week by a family member recognized all the letters of the alphabet compared to 14 percent of children read to less frequently (table 3). Children who were read to frequently are also more likely than those who were not to count to 20 or higher (60 percent vs. 44 percent), to write their own names (54 percent vs. 40 percent), and to read or pretend to read (77 percent vs. 57 percent). Children who were read to frequently are nearly twice as likely as other children to show three or more skills associated with emerging literacy (42 percent vs. 24 percent).

As other researchers have found, however, it is not only being read to that helps children learn. Children who were told stories three or more times in the last week are also more likely than those who were not to recognize all the letters of the alphabet (28 percent vs. 20 percent), to count to 20 or higher (60 percent vs. 54 percent), and to read or pretend to read (79 percent vs. 68 percent). They are also more likely to be able to write their own names (54 percent vs. 49 percent), though the difference is not very large.[3] Children who were told stories three or more times in the last week are also more likely than those who were not to show at least three signs of emerging literacy (44 percent vs. 34 percent), though the differences between those who were told stories often and those who were not are not as dramatic as they are for children who were read to frequently and those who were not.

Children whose families taught them letters, words, or numbers three or more times in the last week or who visited the library with their families in the last month are also more likely than other children to show signs of emerging literacy. Forty-three percent of children whose families taught them letters, words, or numbers three or more times in the last week show at least three of the four signs of emerging literacy compared to 31 percent of children whose families taught them letters, words, or numbers less frequently or not at all. Similarly, 49 percent of children whose families took them to the library at least once in the past month show three or more signs of emerging literacy

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[2] The relationships between activities and skills discussed in this section were also found to be significant in the 1993 data, except where noted.

[3] This difference was not statistically significant in the 1993 data.

Table 3.—Percentage of 3- to 5-year-old children not yet enrolled in kindergarten with specific reported school readiness skills, by number of home literacy activities conducted in the past week: 1999

Home activity	Children (in thousands)	Percent with specific skills				
		Recognizes all letters	Counts to 20 or higher	Writes name	Reads or pretends to read storybooks	Has 3–4 skills
Total	8,549	24	57	51	74	39
Read to						
Fewer than 3 times	1,628	14	44	40	57	24
3 times or more	6,921	26	60	54	77	42
Told a story						
Fewer than 3 times	4,299	20	54	49	68	34
3 times or more	4,251	28	60	54	79	44
Taught letters, words, or numbers						
Fewer than 3 times	3,060	17	47	45	69	31
3 times or more	5,490	27	62	55	76	43
Taught songs or music						
Fewer than 3 times	4,392	24	57	55	71	40
3 times or more	4,158	23	56	47	76	37
Did arts and crafts						
Fewer than 3 times	5,206	21	56	50	70	37
3 times or more	3,343	28	59	53	80	42
Visited a library[1]						
No	5,439	19	51	45	70	33
Yes	3,110	32	67	63	79	49
Number of different types[2] of literacy activities						
Fewer than 3	2,803	16	48	45	64	30
3 or more	5,747	27	61	54	78	43

[1] Refers to visiting a library at least once in the past month.

[2] Types of literacy activities include reading to the child; telling a story; teaching letters, words, or numbers; teaching songs or music; and doing arts or crafts (each three or more times in the past week) and visiting a library (in the past month).

NOTE: Because of rounding, numbers of children may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Parent Interview," 1999.

compared to 33 percent of children whose families did not take them to the library in the past month.

The results in table 3 suggest that teaching children songs or music is generally not associated with showing signs of emerging literacy. Only two associations are statistically significant. The first is the association between teaching songs or music and the children being able to write their names.[4] However, the association is opposite of what might be expected. The data suggest that children whose parents taught them songs or music three or more times in the last week are *less* likely to be able to write their own names than children who were taught songs or music less frequently (47 percent vs. 55 percent). The second is the association between teaching children songs or music and the children reading or pretending to read. Here the association is significant and in the expected direction. Seventy-six percent of children whose families taught them songs or music three or more times in the last week read or pretend to read compared to 71 percent of other children. Recall that table 1 showed that younger children are more likely than older children to be taught songs or music. Similarly, table 2 showed that younger children are less likely than older children to show each of the signs of emerging literacy, though the difference was smallest for reading and pretending to read. Thus, the generally weak association between teaching songs or music and signs of emerging literacy may be due to the overrepresentation of younger children among those who are taught songs or music three or more times in the last week. That is, whereas younger children are more likely than older children to be taught songs or music frequently, they are less likely to show signs of emerging literacy. It is possible that teaching songs and music fosters emerging literacy skills, but at a gradual pace. Alternatively, such activities may foster skills that are not measured in this report, but that are, nevertheless, important to children's healthy development.

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[4] This difference was not statistically significant in the 1993 data.

Doing arts and crafts with children frequently, like reading to them and telling them stories, is associated with acquiring literacy skills. For example, 28 percent of children whose families did arts and crafts with them three or more times in the last week recognize all the letters of the alphabet compared to 21 percent of children whose families did arts and crafts with them less frequently or not at all. Similarly, 42 percent of children whose families did arts and crafts with them three or more times in the last week show at least three signs of emerging literacy compared to 37 percent of children whose families did arts and crafts less frequently with them in the last week. Doing arts and crafts with children may stimulate literacy through the extended conversations that often occur during such activities (Snow 1991; Hall and Robinson 1995).

Children whose families engage in several different types of literacy activities with them may be more likely than other children to show multiple signs of emerging literacy. This hypothesis is, in fact, borne out. Forty-three percent of children whose families engaged in three or more types of literacy activities with them in the last week show three or more signs of emerging literacy compared to 30 percent of children whose families shared fewer activities with them.

Taken together, the results in table 3 are strong evidence that children whose families are engaged in literacy activities with them are more likely than other children to show each of the signs of emerging literacy and to show three or more such signs. The one exception is children whose families taught them songs or music frequently. As noted earlier, the generally weak association does not mean that teaching songs and music is unimportant to children. The weak association may be due to the fact that younger children are more likely than older children to be taught songs and music and are also less likely to show signs of emerging literacy.

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For technical information, see the complete report:

Nord, C.W., Lennon, J., Liu, B., and Chandler, K. (1999). *Home Literacy Activities and Signs of Children's Emerging Literacy: 1993 and 1999* (NCES 2000–026).

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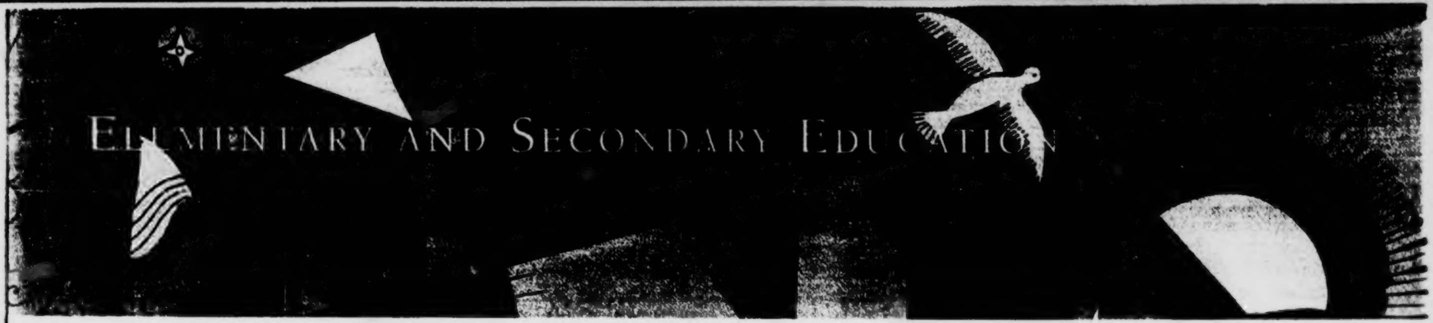

ELEMENTARY AND SECONDARY EDUCATION

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Estimation Skills, Mathematics-in-Context, and Advanced Skills in Mathematics

Julia H. Mitchell, Evelyn F. Hawkins, Frances B. Stancavage, and John A. Dossey

This article was excerpted from Chapter 1 of the report of the same name. The sample survey data are from the NAEP 1996 Mathematics Assessment.

Introduction

For more than a quarter of a century, the National Assessment of Educational Progress (NAEP) has been the only nationally representative and continuing assessment of what students in the United States know and can do in various academic subjects. In addition to the main NAEP assessment. NAEP periodically conducts special studies focused on areas of interest to educators and others. Topics for some of these studies arise as a result of how students performed on NAEP; others are generated simply from research questions about teaching, learning, and assessment of student achievement. This report focuses on studies in mathematics; special studies have also been conducted in, for example, reading and writing.

Studies covered by this report

This report presents information from three special studies conducted as part of the NAEP 1996 Mathematics Assessment: the Estimation Study, the Study of Mathematics-in-Context (also referred to as the Theme Study), and the Study of Students Taking Advanced Courses in Mathematics (referred to as the Advanced Study). The Theme Study and the Advanced Study were administered for the first time in 1996. The Estimation Study, on the other hand, had been administered twice before, in 1990 and 1992.

Audience and purpose of this report

This report is intended primarily for mathematics educators and others concerned with mathematics education, such as curriculum specialists, teachers, and university faculty in schools of education. The three studies reported here were designed to provide greater detail on how students perform on particular types of mathematics questions.

Estimation Study

The first study was designed to explore students' skills in estimation. It was implemented at three grade levels and was the only one of the studies that provided trend information. Findings from the Estimation Study include the following:

- Although there has been significant improvement in mathematics performance overall since 1990 at all grade levels, the trend for student performance in Estimation over the 6 years since the inception of the Estimation Study in 1990 is less clear (table A).
- Student performance in Estimation at grades 4 and 12 was stronger in 1996 than in 1990.
- Student performance in Estimation at grade 8 appears to be level across the 3 assessment years.

Study of Mathematics-in-Context (Theme Study)

The Theme Study was administered at three grade levels and was designed to assess problem-solving abilities within contexts that allow students to make connections across mathematics content areas. Each student was given a block of questions centered around a single theme. For example, one fourth-grade Theme block was about planning a Butterfly Booth for the school's science fair. Of the six questions posed, one was classified as measuring Procedural Knowledge; the remaining five were classified as measuring Problem-Solving abilities. Questions were designed to assess content in four content strands: Number Sense, Properties, and Operations; Measurement; Geometry and Spatial Sense; and Algebra and Functions. In addition to solving the problems, students were generally asked to provide

Table A.—Average scale scores for National NAEP and Estimation Studies, grades 4, 8, and 12: 1990, 1992, and 1996

	Assessment year	Average overall scale score in Mathematics NAEP	Average Estimation scale score
Grade 4	1996	224*†	206*
	1992	220*	208*
	1990	213	200
Grade 8	1996	272*†	270
	1992	268*	271
	1990	263	269
Grade 12	1996	304*	297*
	1992	299*	294
	1990	294	292

*Significant difference from 1990.

†Significant difference from 1992.

NOTE: Because the Estimation Study was scaled separately from the main mathematics assessment, it is not appropriate to make direct comparisons of the average scale values obtained in a given year across the two scales.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1990, 1992, and 1996 Mathematics Assessments. (Originally published as table 2.4 on p. 18 of the complete report from which this article is excerpted.)

explanations of their answers, using mathematical computations, drawings, or words.

Findings from the Theme Study include the following:

- At the fourth-grade level, with the exception of the first question, most students attempted to answer the questions posed, even though large percentages produced responses that were scored as "incorrect." Although not definitive, this may be evidence that the thematic context of the block of questions encouraged students' attention to the task of solving problems, even ones that proved to be difficult for most students.
- At grade 8, unlike grade 4, many students did not attempt to answer the more complex questions that required them to write explanations or apply concepts in problem settings.
- The response rate to the Theme questions at grade 12 was somewhere between the rates observed for grades 4 and 8, with most questions being attempted by at least 90 percent of the students.
- At all grade levels, students appeared to have difficulty with complex multistep problems, even those that required only simple computational skills at each step of the problem.
- At all grade levels, many students seemed to lack the mathematical knowledge needed to solve problems. Other students, however, appeared to understand the underlying mathematics but provided incorrect or incomplete responses as a result of carelessness, inexperience in writing out solutions to problems, or confusion over the wording of the question.
- At all grade levels, no positive relationship was seen between student performance on the Theme blocks and the frequency with which students engaged in writing a few sentences about how to solve a mathematics problem, or engaged in writing reports or doing mathematics projects (tables B, C, and D).

Table B.—Average percentage correct scores by Theme block, selected characteristics, and student responses, grade 4: 1996

	The Butterfly Booth	Recycling
All students	30	30
Gender		
Male	29	30
Female	31	29
Race/ethnicity		
White	34	33
Black	17	20
Hispanic	21	22
Asian/Pacific Islander	35	35
American Indian/Alaska Native	(#)	(#)
Students whose teachers report asking students to write a few sentences about how to solve a mathematics problem . . .		
Nearly every day	35	34
Once or twice a week	30	32
Once or twice a month	29	27
Never or hardly ever	32	30
Students whose teachers report asking students to write reports or do a mathematics project . . .		
Nearly every day	(#)	(#)
Once or twice a week	(#)	(#)
Once or twice a month	30	30
Never or hardly ever	30	30

#Estimate too small to report.

NOTE: Because results from the Theme Study did not lend themselves to development of an achievement scale, results are reported simply in terms of percentages of questions that students answered correctly.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment. (Originally published as table 3.3 on p. 33 of the complete report from which this article is excerpted.)

Table C.—Average percentage correct scores by Theme block, selected characteristics, and student responses, grade 8: 1996

	Build a Doghouse	Flooding
All students	41	30
Gender		
Male	39	31
Female	43	30
Race/ethnicity		
White	45	34
Black	27	18
Hispanic	33	22
Asian/Pacific Islander	43	35
American Indian/Alaska Native	(#)	(#)
Students whose teachers report asking students to write a few sentences about how to solve a mathematics problem . . .		
Nearly every day	42	29
Once or twice a week	44	32
Once or twice a month	40	30
Never or hardly ever	42	31
Students whose teachers report asking students to write reports or do a mathematics project . . .		
Nearly every day	(#)	(#)
Once or twice a week	39	30
Once or twice a month	42	32
Never or hardly ever	42	30

#Estimate too small to report.

NOTE: Because results from the Theme Study did not lend themselves to development of an achievement scale, results are reported simply in terms of percentages of questions that students answered correctly.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment. (Originally published as table 3.12 on p. 70 of the complete report from which this article is excerpted.)

Study of Students Taking Advanced Courses in Mathematics (Advanced Study)

The Advanced Study was administered at grades 8 and 12 and was designed to provide students who were taking or had taken advanced courses in mathematics an opportunity to demonstrate their full mathematical proficiency. Findings from the Advanced Study include the following:

- Students participating in the Advanced Study differed from those who did not qualify for the study in that they tended to come from homes providing a stronger educational context, both in materials (newspapers, books, encyclopedias, magazines, etc.) and in level of parental education. In addition, based on their participation in Title I programs or qualification for the federal Free/Reduced-Price Lunch program, fewer Advanced Study students appeared to come from low-income homes.
- As would be expected, students at both grade levels who met the criterion for inclusion in the Advanced Study performed substantially better than other students on the main NAEP mathematics assessment.
- The results show that Advanced Study questions were quite difficult, even for students who were taking the more challenging mathematics courses that were prerequisite for participation in the study. Overall performance, measured by average percentage correct, was 36 percent at grade 8 and 30 percent at grade 12. At both grade levels, moreover, most of these students were unable to solve problems that required two or three successive steps to achieve the desired result.
- At grade 12, students who were currently taking mathematics or who were, or had been, enrolled in an Advanced Placement (AP) mathematics course outperformed students in the study who were not currently taking a mathematics course or who had not taken an AP course in mathematics.

Table D.—Average percentage correct scores by Theme block, selected characteristics, and student responses, grade 12: 1996

	Buying a Car	Flooding
All students	41	38
Gender		
Male	40	39
Female	42	37
Race/ethnicity		
White	46	44
Black	24	23
Hispanic	30	26
Asian/Pacific Islander	45	34
American Indian/Alaska Native	(#)	(#)
Students whose teachers report asking students to write a few sentences about how to solve a mathematics problem . . .		
Nearly every day	33	31
Once or twice a week	43	38
Once or twice a month	43	40
Never or hardly ever	41	39
Students whose teachers report asking students to write reports or do a mathematics project . . .		
Nearly every day	(#)	(#)
Once or twice a week	37	31
Once or twice a month	42	40
Never or hardly ever	42	39

#Estimate too small to report.

NOTE: Because results from the Theme Study did not lend themselves to development of an achievement scale, results are reported simply in terms of percentages of questions that students answered correctly.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment. (Originally published as table 3.26 on p. 112 of the complete report from which this article is excerpted.)

Data source: The National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment.

For technical information, see the complete report:

Mitchell, J.H., Hawkins, E.F., Stancavage, F.B., and Dossey, J.A. (1999). *Estimation Skills, Mathematics-in-Context, and Advanced Skills in Mathematics* (NCES 2000–451).

For additional details on survey methodology, see

Allen, N.L., Carlson, J.E., and Zelenak, C.A. (1999). *The NAEP 1996 Technical Report* (NCES 1999–452).

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To obtain the complete report (NCES 2000–451), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

BEST COPY AVAILABLE

Youth Service-Learning and Community Service Among 6th- Through 12th-Grade Students in the United States: 1996 and 1999

Brian Kleiner and Christopher Chapman

This article was originally published as a Statistics in Brief report. The sample survey data are from the NCES National Household Education Survey (NHES). Technical notes and standard errors from the original report have been omitted.

Introduction

Involving America's students in community service activities is one of the objectives established under the third National Education Goal for the year 2000, which seeks to prepare students for responsible citizenship. Over the past 10 years, legislative initiatives have responded to and galvanized a growing national emphasis on increasing students' involvement with their local communities and linking this service to academic study through service-learning. Examples of initiatives that have mandated support for service-learning activities in elementary and secondary schools include the National and Community Service Act of 1990, the Serve America program and the National and Community Service Trust Act of 1993, and the Learn and Serve America program (Corporation for National Service 1999).

Although definitions of service-learning vary, for the purposes of this report, it is defined as "an educational activity, program, or curriculum that seeks to promote students' learning through experiences associated with volunteerism or community service" (Sheckley and Keeton 1997, 32). Proponents argue that involvement in service-learning enhances education, revitalizes communities, and teaches the importance of community participation and democratic values. The National Service-Learning Cooperative states that "service-learning is a teaching and learning method that connects meaningful community service experience with academic learning, personal growth, and civic responsibility" (Mintz and Liu 1994, 12).

Trends suggest that the percentage of American high school seniors who participated in "community affairs or voluntary work" in any given year was relatively stable from the mid-1970s through the early 1990s (Youniss and Yates 1997), and the percentage of 12- through 17-year-olds who volunteered in 1995 was similar to the percentage who volunteered in 1991 (Hodgkinson and Weitzman 1997). However, schools appear to have become more interested in promoting community service. In 1984, 27 percent of high schools offered community service opportunities to their students, and by 1999, over 80 percent of public high schools were doing so (Newmann and Rutter 1985; Skinner and Chapman 1999).

Although there are few studies of trends in service-learning based on student reports, some findings from school-level data do suggest that it has become more prevalent since the mid-1980s. In 1984, approximately 9 percent of all high schools had some form of service-learning, and in 1999, roughly 46 percent of public high schools were using at least some service-learning activities (Newmann and Rutter 1985; Skinner and Chapman 1999). Also, in 1999, 32 percent of all public schools (i.e., public schools at all levels) had service-learning. Among youth in 1996, 27 percent of students in grades 6 through 12 reported that at least part of their community service experience was incorporated into their curriculum in some way (Nolin, Chaney, and Chapman 1997). Together, these findings indicate that although America's youth are about as likely to participate in community service now as in the 1970s, schools have increasingly attempted to promote community service and to use service experiences to improve student education.

The National Household Education Surveys of 1999 (NHES:1999) and 1996 (NHES:1996) included nationally representative data on student reports of school practices, community service, and service-learning experiences at school, as well as data on student and school characteristics. Both NHES:1999 and NHES:1996 were conducted for the U.S. Department of Education's National Center for Education Statistics (NCES). Telephone interviews were conducted with 7,913 students in grades 6 through 12 (107 of whom were homeschoolers who were not included in this analysis) in 1999, and 8,043 students in grades 6 through 12 (103 of whom were homeschoolers who were not included in this analysis) in 1996. Information was also collected from parents of these student respondents. Data in this report regarding student and school characteristics are taken from these parent interviews.

In this report, data from the NHES:1996 "Youth Civic Involvement Interview" were compared to data from the NHES:1999 "Youth Interview" to estimate changes across years in student reports of school practices to promote community service, student participation in community service activities, and service-learning experiences. These data were then examined in relation to student and school characteristics, both across and within years.

Student Reports of School Practices to Promote Community Service

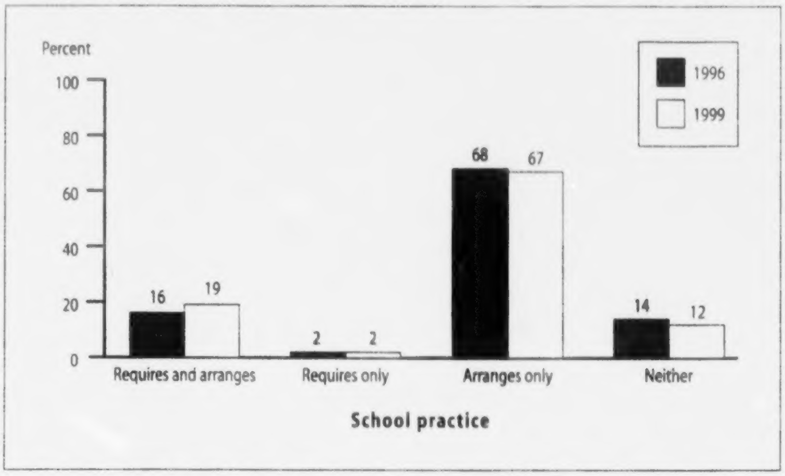
In NHES:1996 and NHES:1999, students were asked whether their schools require and/or arrange community service activities (data were collected from January through early April for both administrations). Results were organized into four categories, depending on whether students attended schools that both required and arranged community service, required but did not arrange, arranged but did not require, or neither required nor arranged community service. Generally, there has been a slight but significant increase in the percentage of students in schools both requiring and arranging community service across years (table 1 and figure 1). Nineteen percent of students in 1999, compared to 16 percent of students in 1996, reported that their schools both required and arranged community service. As in 1996, 1999 results indicate that most students attend schools that arrange but do not require community service—67 percent reported that their schools only arrange community service, whereas 19 percent of students reported that their schools require and arrange community service, 12 percent reported that their schools neither require nor arrange community service, and 2 percent reported that their schools only require community service.

Differences by student characteristics

For both 1996 and 1999, there were differences by race/ethnicity found in reports of school practices (table 1). In 1996, Hispanic students (22 percent) were more likely than white students (15 percent) to attend schools that both require and arrange community service. By 1999, both black (22 percent) and Hispanic (28 percent) students were more likely to be in such schools than were white students (16 percent). Across years, Hispanic students were more likely to report that their schools required and arranged community service in 1999 (28 percent) than in 1996 (22 percent).

In both survey years, students in grades 6 through 8 were less likely than students in grades 9 and 10 and in grades 11 and 12 to report that their schools require and arrange community service, suggesting that high school students experienced more incentives from their schools to participate than did middle school students. In 1999, the percentages of students reporting that their schools required and

Figure 1.—Percent of students in grades 6 through 12 who reported various school practices to promote community service: 1996 and 1999



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Youth Civic Involvement Interview," 1996, and "Youth Interview," 1999.

Table 1.—Percent of students in grades 6 through 12 who reported school practices to promote student community service, by selected student and school characteristics: 1996 and 1999

Characteristics	Number of students (thousands)		School requires and arranges community service (percent)		School only requires community service (percent)		School only arranges community service (percent)		School does not require or arrange community service (percent)	
	1996	1999	1996	1999	1996	1999	1996	1999	1996	1999
Total	25,726	26,990	16	19	2	2	68	67	14	12
Student's grade*										
6–8	11,535	11,713	13	16	2	2	67	67	18	15
9–10	7,429	7,933	21	24	2	2	65	65	12	10
11–12	6,760	7,322	18	20	1	1	71	69	11	10
Student's sex										
Male	13,190	13,599	15	20	2	2	69	66	14	13
Female	12,537	13,392	18	19	1	2	66	68	14	12
Student's race/ethnicity										
White, non-Hispanic	17,322	17,354	15	16	1	1	69	70	15	12
Black, non-Hispanic	4,112	4,206	19	22	2	3	66	62	12	13
Hispanic	3,281	4,067	22	28	3	3	64	58	11	11
Other race/ethnicity	1,012	1,363	18	24	1	1	68	65	14	11
School type										
Public	23,343	24,550	14	17	2	2	70	69	15	12
Private										
Church-related	1,851	1,786	42	42	2	2	46	48	10	7
Not church-related	533	655	31	41	1	3	60	45	8	11
School size										
Under 300	2,754	2,909	15	17	1	4	65	61	19	18
300–599	7,782	7,812	16	18	2	2	66	67	16	13
600–999	6,439	6,462	15	18	1	1	69	69	14	12
1,000 or more	8,751	9,808	18	22	2	1	69	67	11	10

*One case was coded "ungraded, no equivalent," for 1996. Three cases were coded "ungraded, no equivalent," for 1999. These were not included in this analysis.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Youth Civic Involvement Interview," 1996, and "Youth Interview," 1999.

arranged community service were significantly higher for grade 9 and 10 students (24 percent) than for grade 11 and 12 students (20 percent).

Differences by school type

For both 1996 and 1999, students attending church-related private schools (42 percent for both years) and nonchurch-related private schools (31 percent in 1996 and 41 percent in 1999) were more likely to say their schools required and arranged community service than students attending public schools. Still, there was a statistically significant increase across years in reports by public school students that their schools both required and arranged community service (14 percent in 1996 and 17 percent in 1999).

Student Reports of Participation in Community Service and Service-Learning

In NHES:1996 and NHES:1999, students were asked whether they had participated in a community service activity within the last year. If they had participated, students were then asked whether they had talked about their community service activity in class, kept a journal or written about the service activity, or received a grade based on the service activity. For the purposes of this report, participation in service-learning is defined operationally as a positive response to at least one of these three indicators.

NHES:1999 data provide mixed results with respect to fulfilling the goals of increasing participation rates in community service and service-learning. Overall student participation in community service was 52 percent in 1999, up from 49 percent in 1996 (table 2). Roughly 3 in 10 students engaged in service-learning in 1999, which was not a statistically significant change from the 27 percent who engaged in service-learning in 1996 (estimates not shown in tables). This means that in 1999 about 57 percent of students, and in 1996 about 56 percent of students, who participated in community service had at least some of their participation reflected in service-learning activities (table 3). Looking at service-learning participation as a percentage of community service participation is important since community service is a prerequisite of service-learning (this

Table 2.—Percent of students in grades 6 through 12 participating in community service, by selected student, household, and school characteristics: 1996 and 1999

Characteristics	Number of students (thousands)		Participation in community service (percent)	
	1996	1999	1996	1999
Total	25,726	26,990	49	52
Student's grade*				
6–8	11,535	11,713	47	48
9–10	7,429	7,933	45	50
11–12	6,760	7,322	56	61
Student's sex				
Male	13,190	13,599	45	47
Female	12,537	13,392	53	57
Student's race/ethnicity				
White, non-Hispanic	17,322	17,354	53	56
Black, non-Hispanic	4,112	4,206	43	47
Hispanic	3,281	4,067	38	39
Other race/ethnicity	1,012	1,363	50	53
Language spoken most at home by student				
English	24,164	24,773	50	54
Other	1,562	2,217	32	34
Parents' highest level of education				
Less than high school	2,469	2,714	34	37
High school graduate or equivalent	7,775	6,993	42	45
Voc/tech education after high school or some college	7,472	7,814	48	50
College graduate	3,881	4,377	58	62
Graduate or professional school	4,129	5,092	64	65
School type				
Public	23,343	24,550	47	50
Private				
Church-related	1,851	1,786	69	72
Not church-related	533	655	57	68
School size				
Under 300	2,754	2,909	49	53
300–599	7,782	7,812	50	50
600–999	6,439	6,462	48	51
1,000 or more	8,751	9,808	49	54
School practice				
Requires and arranges service	4,242	5,201	56	59
Requires service only	394	460	19	39
Arranges service only	17,446	18,060	52	55
Neither requires nor arranges service	3,644	3,269	30	29

*One case was coded "ungraded, no equivalent," for 1996. Three cases were coded "ungraded, no equivalent," for 1999. These were not included in this analysis.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Youth Civic Involvement Interview," 1996, and "Youth Interview," 1999.

Table 3.—Among students in grades 6 through 12 who engaged in community service, percent participating in service-learning and the indicators of service-learning, by selected student, household, and school characteristics: 1996 and 1999

	Number of students participating in community service (thousands)		Participation in service-learning, among students who did community service[1] (percent)		Indicators of service-learning					
					Talked about service activity in class (percent)		Required to keep a journal or write an essay for class (percent)		Service activity contributed to a class grade (percent)	
Characteristics	1996	1999	1996	1999	1996	1999	1996	1999	1996	1999
Total	12,627	14,063	56	57	45	45	17	19	23	24
Student's grade[2]										
6–8	5,462	5,610	59	62	48	50	19	22	24	27
9–10	3,370	3,955	54	52	41	40	17	15	21	23
11–12	3,795	4,486	54	56	44	45	16	19	23	22
Student's sex										
Male	5,971	6,446	54	56	42	43	16	21	23	26
Female	6,656	7,617	58	59	47	48	18	18	22	23
Student's race/ethnicity										
White, non-Hispanic	9,113	9,759	52	53	42	42	14	15	20	20
Black, non-Hispanic	1,761	1,993	68	69	55	55	30	29	34	36
Hispanic	1,246	1,587	65	67	50	53	23	28	29	34
Other race/ethnicity	506	724	57	60	44	46	18	28	28	24
Language spoken most at home by student										
English	12,131	13,304	56	57	45	45	17	18	22	24
Other	496	759	65	69	45	53	32	33	36	35
Parents' highest level of education										
Less than high school	834	1,013	69	69	52	54	34	32	34	39
High school graduate or equivalent	3,273	3,125	60	64	49	51	21	23	28	31
Voc/tech education after high school or some college	3,617	3,930	57	59	46	47	14	18	24	24
College graduate	2,250	2,710	50	52	41	42	14	17	18	19
Graduate or professional school	2,653	3,285	51	50	40	38	16	14	16	18
School type										
Public	11,056	12,331	54	56	43	44	17	18	22	24
Private										
Church-related	1,270	1,286	71	67	58	56	23	26	30	29
Not church-related	301	446	65	63	60	52	11	24	18	14
School size										
Under 300	1,336	1,531	61	65	51	37	19	22	28	27
300–599	3,892	3,887	54	60	42	31	17	22	23	26
600–999	3,111	3,304	57	57	46	29	17	17	23	25
1,000 or more	4,288	5,341	56	53	44	26	18	18	22	22
School practice										
Requires and arranges service	2,389	3,094	67	70	50	52	32	32	35	38
Requires service only	74	178	(#)	50	(#)	41	(#)	15	(#)	13
Arranges service only	9,087	9,848	56	56	47	45	14	16	22	22
Neither requires nor arranges service	1,076	942	27	34	21	23	9	11	6	9

#Estimate too small to report.

[1] Participation in service-learning is defined by reported involvement in at least one of the three indicators of service-learning.

[2] One case was coded "ungraded, no equivalent," for 1996. Three cases were coded "ungraded, no equivalent," for 1999. These were not included in this analysis.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Youth Civic Involvement Interview," 1996, and "Youth Interview," 1999.

approach is used throughout the remainder of the report). Of the three indicators of service-learning shown in table 3, in both 1999 and 1996, service-learning participants were more likely to say they talked about their service experience in class than to say they were required to keep a journal or write an essay for class, or to say that the service activity contributed to a class grade.

A comparison of overall participation in community service activities with school practices (for both 1996 and 1999) supports findings reported in a previous NCES report that looked only at the 1996 NHES data (Nolin, Chaney, and Chapman 1997). The 1996 and 1999 comparisons reveal that, in both years, students whose schools require and arrange or only arrange community service were more likely to participate in a community service activity than students whose schools only require or neither require nor arrange community service (table 2). It is probable that the low participation rates in community service among students whose schools only require it are due to the fact that not all students will have participated in community service within the last year, even though they might have fulfilled the requirement earlier or else planned to satisfy it later. These findings suggest that facilitation by schools is a factor in whether or not youth perform community service and also confirm the findings of Verba, Schlozman, and Brady (1995), which indicate that announcements of opportunities for participation often serve as a catalyst for volunteerism. In both years, a comparison of service-learning participation with school practices (table 3) reveals that students who attend schools that both require and arrange community service (67 percent in 1996 and 70 percent in 1999) were more likely to engage in service-learning than students who attend schools that only arrange (56 percent in 1996 and 1999) or neither require nor arrange community service (27 percent in 1996 and 34 percent in 1999). The same holds true generally for the three indicators of service-learning taken individually.

Differences by student characteristics

Students in grades 11 and 12 were more likely to participate in community service activities than students in grades 6 through 8 and students in grades 9 and 10, for both 1996 and 1999 (table 2). In addition, sex, linguistic, and race/ethnicity differences were found each year in reported youth participation in community service. Females were more likely than males to participate in community service, as were youth who speak mostly English at home compared to those who speak mostly another language at home. White students were more likely to participate in community service than black and Hispanic students. For 1999, black students were more likely than Hispanic students to report community service. In addition, students whose parents have higher levels of education are more likely to participate in community service than students whose parents have lower levels of education.

Though less likely than white students to participate in community service, of those students who did community service, Hispanic and black students were more likely than white students to participate in service-learning in both 1996 and 1999 (table 3). Furthermore, parents' level of education appears to be inversely associated with service-learning in that students whose parents have less education were significantly more likely to report service-learning experiences than students whose parents have higher levels of education. Results by parents' highest level of education were similar for each of the three indicators of service-learning.

Differences by school type

For both 1996 and 1999, students in public schools (47 percent in 1996 and 50 percent in 1999) were less likely to report participation in community service than students in church-related private schools (69 percent in 1996 and 72 percent in 1999) (table 2). In 1999, students attending public schools were less likely to participate in community service than were students in private nonchurch-related schools (50 percent compared to 68 percent). In addition, students from private church-related schools were more likely than those from public schools to report service-learning experiences for both 1996 and 1999 (table 3).

Summary

Student reports of school practices indicate that a higher percentage of students were in schools that required and arranged community service in 1999 than in 1996. These reports indicate that students in grades 9 and 10, and 11 and 12 are more likely to attend schools that require and arrange community service than students in grades 6 through 8. Also, private school students are more likely to report that their schools require and arrange community service than are public school students. Public school students did, however, show an increase across years with respect to attending schools that require and arrange community service. Overall, approximately 50 percent of 6th- through 12th-grade students participated in community service and over half of these participants were engaged in service-learning in both 1999 and 1996.

Parents' highest level of education is positively associated with community service participation, whereas it is inversely associated with service-learning. With respect to race/ethnicity, white students were more likely to participate in community service, but of those students who did community service, white students were less likely than black and Hispanic students to participate in service-learning at their schools. In addition, in 1999, white students were less likely than black and Hispanic students to report that their schools both require and arrange community service. Thus, it appears that black and Hispanic students, and students whose parents have less education, are more likely to be enrolled in schools that place greater emphasis on service-learning. Future research might examine the nature of these findings.

Finally, as in 1996, the 1999 results indicate that school practices are significantly associated with community service participation rates and service-learning experiences among students. Students are more likely to have service-learning experiences if their schools both require and arrange community service. Further, students are more likely to perform community service activities when their schools require and arrange or else only arrange community service. The low participation rates in community service among students whose schools only require it may be due to the fact that not all students will have participated in community service within the last year, even though they might have fulfilled the requirement earlier or else planned to satisfy it later.

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To obtain the complete report (NCES 2000–028), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Racial and Ethnic Distribution of Elementary and Secondary Students

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999. *The sample survey data are from the U.S. Census Bureau's Current Population Reports and October Current Population Survey (CPS).

Changes in the racial/ethnic composition of students may alter the degree of heterogeneity of language and culture in the nation's schools. Although variety in student backgrounds and interests can enhance the learning environment, it can also create new or increased challenges for the schools. Knowledge of the shifting racial/ethnic distribution of public elementary and secondary students can give schools the foresight to plan for these challenges.

- Thirty-six percent of students enrolled in public elementary and secondary schools were considered part of a minority group in 1996, an increase of 12 percentage points from 1976 (not shown). This increase was largely due to the growth in the percentage of Hispanic students.
- Since 1970, black students have accounted for approximately one out of every three students who lived in central cities and attended public schools. In 1996, 10 percent of the students who lived in a metropolitan area outside of a central city and who attended public schools were black, up from 6 percent in 1970 (table 1).
- In 1996, approximately 1 out of every 4 students who lived in a central city and who attended public

Table 1.—Percentage of students in grades 1–12 who were black or Hispanic, by control of school and place of residence: 1970–96

	Black					Hispanic				
	Public schools					Public schools				
Year	Total	Central city	Other metropolitan	Nonmetropolitan	Private schools	Total	Central city	Other metropolitan	Nonmetropolitan	Private schools
1970	14.8	32.5	6.2	12.0	4.7	—	—	—	—	—
1972	14.9	31.7	6.3	11.3	5.2	5.8	10.8	4.4	3.6	4.7
1974	15.4	33.2	6.6	11.8	4.3	6.2	11.4	4.4	4.4	7.3
1976	16.0	34.0	7.6	11.7	5.8	6.6	11.4	5.9	3.7	5.4
1978	16.1	35.9	7.4	12.3	6.0	6.4	11.9	6.1	3.0	5.2
1979	16.1	35.8	8.8	10.9	7.5	6.8	14.0	5.3	3.5	5.5
1982	16.2	34.0	8.6	11.9	6.6	8.7	17.7	7.0	4.3	7.3
1985	17.0	36.0	9.5	12.7	5.6	10.1	21.5	8.6	4.2	6.1
1986	16.7	32.9	8.3	14.1	6.9	10.6	20.2	8.3	4.1	7.0
1988	16.8	32.4	9.8	12.2	8.2	10.8	19.2	9.0	4.7	6.7
1990	16.5	33.1	8.8	12.5	7.2	11.6	19.8	10.8	4.0	7.2
1991	16.7	33.0	9.2	12.4	7.3	11.7	20.6	10.5	3.5	7.1
1992	16.7	32.5	9.5	11.9	7.4	11.9	20.8	10.9	3.6	7.7
1993	16.7	32.9	10.4	10.9	9.8	11.9	21.6	9.9	5.1	7.1
1994	16.8	33.0	9.6	12.9	11.1	13.4	24.7	11.1	5.8	9.1
1995	17.1	31.8	10.7	12.8	9.7	14.0	24.3	11.6	6.5	7.4
1996	17.0	31.9	10.4	12.5	9.1	14.3	25.0	11.3	6.9	8.3

—Not available.

NOTE: The Current Population Survey (CPS) definition of metropolitan areas in the United States was changed in 1985; through 1984, metropolitan areas were defined on the basis of the 1970 census. A small number of students were both black and Hispanic (less than 1 percent). In 1994, the survey instrument for the CPS was changed and weights were adjusted.

SOURCE: U.S. Department of Commerce, Bureau of the Census: *School Enrollment—Social and Economic Characteristics of Students* (Current Population Reports, Series P20, selected years), detailed table 5, "Level of enrollment below college for persons 3 to 24 years old, by control of school, metropolitan status, sex, race, and Hispanic origin", and Current Population Survey (CPS), October 1970–96 (selected years).

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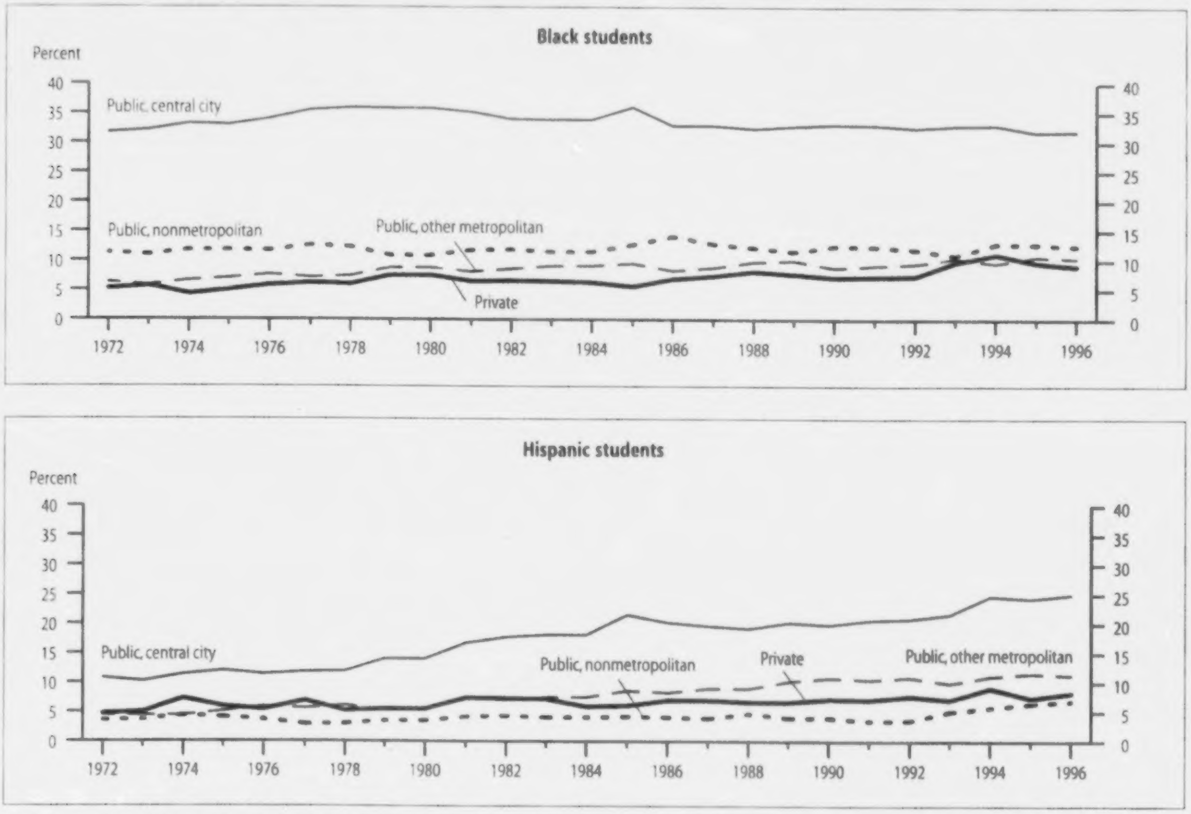
schools was Hispanic, up from approximately 1 out of every 10 students in 1972 (table 1 and figure 1).

- The percentage of black and Hispanic students enrolled in private schools increased between 1972 and 1996, rising from 5 percent each for both black and Hispanic students in 1972 to 9 percent for black students and 8 percent for Hispanic students in 1996 (table 1 and figure 1).

Figure 1.—Percentage of students in grades 1–12 who were black or Hispanic, by control of school and place of residence: 1972–96



NOTE: Control of school was not available in 1980. Residence of students was not available in 1984. The Current Population Survey (CPS) definition of metropolitan areas in the United States was changed in 1985. A small number of students (less than 1 percent) were both black and Hispanic. In 1994, the survey instrument for the CPS was changed and weights were adjusted.

SOURCE: U.S. Department of Commerce, Bureau of the Census: *School Enrollment—Social and Economic Characteristics of Students* (Current Population Reports, Series P20; selected years), detailed table 5, "Level of enrollment below college for persons 3 to 24 years old, by control of school, metropolitan status, sex, race, and Hispanic origin"; and Current Population Survey (CPS), October 1970–96 (selected years).

Data sources: U.S. Census Bureau: *School Enrollment—Social and Economic Characteristics of Students* (Current Population Reports, Series P20; selected years), detailed table 5, "Level of enrollment below college for persons 3 to 24 years old, by control of school, metropolitan status, sex, race, and Hispanic origin"; and Current Population Survey (CPS), October 1970–96 (selected years).

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

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Dropout Rates in the United States: 1998

Phillip Kaufman, Jin Y. Kwon, Steve Klein, and Christopher D. Chapman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data come primarily from the U.S. Census Bureau's October Current Population Survey (CPS), and the universe data primarily from the NCES Common Core of Data (CCD).

This report is the 11th in a series of National Center for Education Statistics (NCES) reports on high school dropout and completion rates. It presents data on rates in 1998, the most recent year for which data are available, and includes time series data on high school dropout and completion rates for the period 1972 through 1998. In addition to extending time series data reported in earlier years, this report examines the characteristics of high school dropouts and high school completers in 1998.

Event Dropout Rates

Event dropout rates for 1998 describe the proportion of youth ages 15–24 who dropped out of grades 10–12 in the 12 months preceding October 1998. Demographic data collected in the Current Population Survey (CPS) permit event dropout rates to be calculated across various individual characteristics, including race/ethnicity, sex, region of residence, and income level.

- About 5 out of every 100 young adults enrolled in high school in 1997 left school before October 1998 without successfully completing a high school program. This estimate of 4.8 percent (tables A and B) was similar to the estimates reported over the last 10 years, but lower than those reported in the early 1970s (figure A).
- Hispanic students were more likely than white and black students to leave school before completing a high school program: in 1998, 9.4 percent of Hispanic students were event dropouts, compared with 3.9 percent of white and 5.2 percent of black students (tables A and B). The event dropout rates of white students were not significantly different from those of black students.
- In 1998, young adults living in families with incomes in the lowest 20 percent of all family incomes were four times as likely as their peers from families in the top 20 percent of the income distribution to drop out of high school (table B).
- Although dropout rates were highest among students age 19 or older, about two-thirds (69 percent) of the current-year dropouts were ages 15 through 18; moreover, about one-third (34 percent) of the 1998 dropouts were ages 15 through 17 (table B).

Status Dropout Rates

Over the last decade, between 350,000 and 550,000 10th- through 12th-grade students left school each year without successfully completing a high school program. Each year some of these young adults return to high school or enter

Table A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who completed high school, by race/ethnicity: October 1998

Dropout and completion measures	Total[1]	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/Pacific Islander
Percentage of youth ages 15–24 who dropped out of grades 10–12, October 1997 to October 1998 (event dropout rates)	4.8	3.9	5.2	9.4	(#)
Percentage of youth ages 16–24 who were dropouts in 1998 (status dropout rates)	11.8	7.7	13.8	29.5	4.1
Percentage of youth ages 18–24 who were high school completers in 1998[2] (completion rates)	84.8	90.2	81.4	62.8	94.2

#Sample size too small for reliable estimate.

[1] Due to relatively small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2] Excludes those still enrolled in high school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1998.

Table B.—Event dropout rates and number and distribution of 15- through 24-year-olds who dropped out of grades 10–12, by background characteristics: October 1998

Characteristic	Event dropout rate (percent)	Number of event dropouts (thousands)	Population enrolled (thousands)	Percent of all dropouts	Percent of population
Total	4.8	479	10,079	100.0	100.0
Sex					
Male	4.6	237	5,117	49.4	50.8
Female	4.9	243	4,962	50.6	49.2
Race/ethnicity[1]					
White, non-Hispanic	3.9	266	6,778	55.6	67.2
Black, non-Hispanic	5.2	84	1,602	17.5	15.9
Hispanic	9.4	115	1,221	24.0	12.1
Family income[2]					
Low	12.7	185	1,454	38.5	14.4
Middle	3.8	215	5,725	44.9	56.8
High	2.7	80	2,900	16.6	28.8
Age[3]					
15 through 16	2.3	66	2,810	13.7	27.9
17	2.8	98	3,432	20.4	34.1
18	5.9	166	2,791	34.6	27.7
19	10.6	85	802	17.8	8.0
20 through 24	26.5	65	245	13.5	2.4
Region					
Northeast	3.8	70	1,862	14.7	18.5
Midwest	3.6	90	2,494	18.8	24.7
South	5.1	177	3,430	36.9	34.0
West	6.2	142	2,294	29.7	22.8

[1] Due to relatively small sample sizes, American Indians/Alaska Natives and Asians/Pacific Islanders are included in the total but are not shown separately.

[2] Low income is defined as the bottom 20 percent of all family incomes for 1998; middle income is between the 20th and 80th percentiles of all family incomes; and high income is the top 20 percent of all family incomes.

[3] Age when a person dropped out may be 1 year younger, because the dropout event could occur at any time over a 12-month period.

NOTE: Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1998. (Originally published as table 1 on p. 5 of the complete report from which this article is excerpted.)

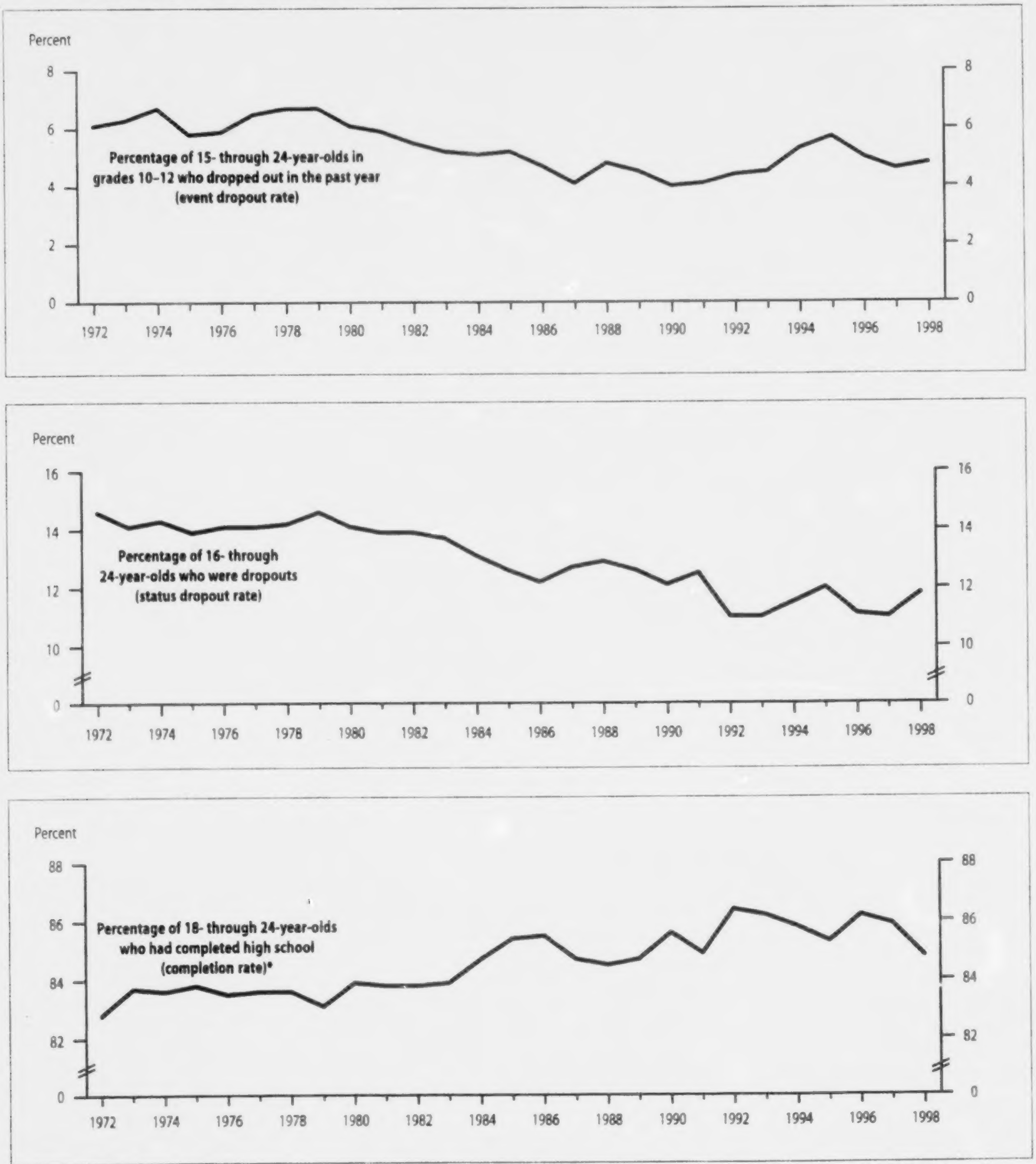
an alternative certification program, and others pass out of this age group. Status dropout rates represent the proportion of young adults ages 16 through 24 who are out of school and who have not earned a high school credential.

- In October 1998, some 3.9 million young adults were not enrolled in a high school program and had not completed high school. These youths accounted for 11.8 percent of the 33 million 16- through 24-year-olds in the United States in 1998 (tables A and C). As noted with event rates, this estimate is consistent with the estimates reported over the last 10 years, but lower than those reported in the early 1970s (figure A).
- The status dropout rates of whites remain lower than those of blacks, but over the past quarter of a century, the difference between the rates of whites and blacks has narrowed. In addition, Hispanic young adults in the United States continue to have higher status dropout rates than do either their white or black counterparts (tables A and C).
- In 1998, 4.1 percent of Asian/Pacific Islander young adults were status dropouts, compared with 29.5 percent of Hispanics, 13.8 percent of blacks, and 7.7 percent of whites (tables A and C).
- Forty-four percent of Hispanic young adults born outside the 50 states and the District of Columbia were high school dropouts. Although the dropout rates of Hispanics born in the United States were lower than those of their Hispanic peers who were non-U.S.-born, they were higher than the dropout rates of non-Hispanics born in the United States (table C).

High School Completion Rates

The high school completion rate represents the proportion of 18- through 24-year-olds who have completed a high

Figure A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who completed high school: October 1972 through October 1998



NOTE: Data for 1987 through 1998 reflect new editing procedures instituted by the Bureau of the Census for cases with missing data on school enrollment items. Data for 1992 through 1998 reflect new wording of the educational attainment item in the CPS beginning in 1992. Data for 1994 through 1998 reflect changes in the CPS beginning in 1994 due to newly instituted computer-assisted interviewing and the change in population controls used in the 1990 census-based estimates, with adjustment for undercounting in the 1990 census.

*Excluding those still enrolled in high school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1972–98.

school diploma or an equivalent credential, including a General Educational Development (GED) credential.

- In 1998, about 85 percent of all 18- through 24-year-olds not enrolled in high school had completed high school (tables A and D), a slight increase since the early 1970s (figure A).
- High school completion rates have increased for white and black young adults since the early 1970s, with rates of 90.2 percent for whites and 81.4 percent for blacks in 1998. However, Hispanic young adults have not shared in this improvement: 62.8 percent were reported as having completed high school in 1998 (tables A and D). In addition, Asian/Pacific

Table C.—Status dropout rates and number and distribution of 16- through 24-year-olds who were dropouts, by background characteristics: October 1998

Characteristic	Status dropout rate (percent)	Number of status dropouts (thousands)	Population (thousands)	Percent of all dropouts	Percent of population
Total	11.8	3,942	33,445	100.0	100.0
Sex					
Male	13.3	2,241	16,854	56.8	50.4
Female	10.3	1,701	16,592	43.2	49.6
Race/ethnicity[1]					
White, non-Hispanic	7.7	1,697	21,920	43.0	66.0
Black, non-Hispanic	13.8	675	4,893	17.1	14.6
Hispanic	29.5	1,487	5,034	37.7	15.1
Asian/Pacific Islander	4.1	55	1,356	1.4	4.1
Age					
16	3.3	133	4,000	3.4	12.0
17	6.7	266	3,938	6.7	11.8
18	13.2	524	3,955	13.3	11.8
19	14.7	580	3,947	14.7	11.8
20 through 24	13.9	2,440	17,605	61.9	52.6
Recency of immigration					
Born outside the 50 states and the District of Columbia					
Hispanic	44.4	961	2,167	24.4	6.5
Non-Hispanic	7.2	130	1,789	3.3	5.3
First generation[2]					
Hispanic	20.5	315	1,538	8.0	4.6
Non-Hispanic	5.2	94	1,787	2.4	5.3
Second generation or more[3]					
Hispanic	15.8	210	1,328	5.3	4.0
Non-Hispanic	9.0	2,233	24,385	56.6	74.3
Region					
Northeast	9.4	577	6,109	14.6	18.3
Midwest	8.0	622	7,772	15.8	23.2
South	13.1	1,522	11,597	38.6	34.7
West	15.3	1,221	7,967	31.0	23.8

[1] Due to relatively small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2] Individuals defined as "first generation" were born in the 50 states or the District of Columbia, and one or both of their parents were born outside the 50 states and the District of Columbia.

[3] Individuals defined as "second generation or more" were born in the 50 states or the District of Columbia, as were both of their parents.

NOTE: Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1998. (Originally published as table 3 on p. 13 of the complete report from which this article is excerpted.)

Islander young adults in 1998 were more likely than their white, black, and Hispanic peers to complete high school.

Method of High School Completion

Most young adults complete a regular diploma and graduate from high school; others complete high school by an alternative route, such as passing the GED test.

- During the 1990s, the percentage of young adults not enrolled in high school who have earned a high school credential has remained relatively unchanged; however, the percentage with an alternative certification increased from 4.9 percent in 1990 to 10.1 percent in 1998, and the percentage with regular diplomas decreased by a similar amount.

Table D.—High school completion rates and number and distribution of 18- through 24-year-old completers not currently enrolled in high school or below, by background characteristics: October 1998

Characteristic	Completion rate (percent) Total	Diploma	Alternative[1]	Number of completers (thousands)	Population (thousands)	Percent of all completers
Total	84.8	74.7	10.1	20,451	24,113	100.0
Sex						
Male	82.6	72.2	10.4	9,854	11,934	48.2
Female	87.0	77.1	9.8	10,597	12,180	51.8
Race/ethnicity[2]						
White, non-Hispanic	90.2	80.2	10.0	14,333	15,893	70.1
Black, non-Hispanic	81.4	71.7	9.6	2,680	3,294	13.1
Hispanic	62.8	52.1	10.7	2,381	3,788	11.6
Asian/Pacific Islander	94.2	82.9	11.3	929	986	4.5
Age						
18 through 19	82.3	72.5	9.8	5,479	6,658	26.8
20 through 21	85.0	75.0	10.0	5,970	7,025	29.2
22 through 24	86.3	75.9	10.4	9,002	10,430	44.0
Region						
Northeast	87.8	78.2	9.5	3,845	4,379	18.8
Midwest	88.3	80.2	9.1	4,926	5,518	24.1
South	83.4	74.0	9.4	6,921	8,300	33.8
West	80.4	67.9	12.6	4,759	5,916	23.3

[1] Completed high school by means of an equivalency test, such as a GED exam.

[2] Due to relatively small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

NOTE: Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1998. (Originally published as table 4 on p. 18 of the complete report from which this article is excerpted.)

Data sources:

NCES: The Common Core of Data (CCD), "Local Education Agency Universe Survey," 1992–93 through 1997–98; the National Education Longitudinal Study of 1988 Eighth-Graders (NELS:1988/1994); and the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:1980/1982).

Other: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1972–98; and American Council on Education, GED Testing Service, *GED Statistical Report* (1990–98).

For technical information, see the complete report:

Kaufman, P., Kwon, J.Y., Klein, S., and Chapman, C.D. (1999). *Dropout Rates in the United States: 1998* (NCES 2000–022).

Author affiliations: P. Kaufman, J.Y. Kwon, and S. Klein, MPR Associates, Inc.; C.D. Chapman, NCES.

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To obtain the complete report (NCES 2000–022), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Family Characteristics of 6- to 12-Year-Olds

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999. *The sample survey data are from the March Current Population Survey (CPS), conducted by the U.S. Census Bureau.

The family environment in which a child lives affects many aspects of that child's life, including school performance. For example, research has shown that family characteristics, such as parents' educational attainment, number of children in the family, family income, and mother's employment status, are related to student achievement. Data on such family characteristics may help policymakers and educators to apply resources efficiently and to develop programs designed to increase learning.

- The educational attainment of parents of 6- to 12-year-olds increased substantially between 1972 and 1997. For example, the percentage of 6- to 12-year-olds whose mothers completed at least high school increased from 66 to 84 percent (table 1 and figure 1a), while the percentage whose fathers completed at least high school rose from 65 to 85 percent (not shown).
- The employment rate of mothers of 6- to 12-year-olds increased between 1972 and 1997, rising from 39 percent in 1972 to 66 percent in 1997. The employment rate of fathers decreased slightly, from 93 percent in 1972 to 91 percent in 1997 (table 1 and figure 1b). Despite the increase in mothers' employment, median family income (in constant 1997 dollars) remained relatively stable between 1972 and 1997 (not shown).
- The percentage of 6- to 12-year-olds who lived with only their mother doubled between 1972 and 1997, increasing from 12 to 24 percent. Conversely, the percentage who lived with two parents decreased from 87 to 71 percent during the same period (table 1 and figure 1c).
- In 1997, 6- to 12-year-olds had fewer other children in their household than their peers in 1972. For example, in 1972, 71 percent of 6- to 12-year-olds had two or more brothers or sisters, compared with 46 percent in 1997 (table 1 and figure 1d).

Table 1.—Percentage distribution of 6- to 12-year-olds, by selected family characteristics: 1972–97

Selected family characteristics	1972	1977	1982	1987	1992	1997
Mother's highest education level						
Less than high school diploma	34.3	29.5	23.6	20.4	18.0	15.8
High school diploma or GED	47.6	47.4	48.0	45.9	38.8	34.8
Some college	10.8	13.4	16.5	18.9	26.1	28.8
Bachelor's degree or higher	7.2	9.8	12.0	14.8	17.2	20.5
Percentage of children whose mothers were employed	38.5	45.5	52.1	58.1	61.2	66.4
Percentage of children whose fathers were employed	93.1	91.0	88.9	90.3	89.1	91.2
Family type						
Two-parent household	86.8	81.2	77.1	74.9	72.8	71.4
Father as head of household	1.0	1.2	1.8	2.4	3.0	4.2
Mother as head of household	12.3	17.6	21.1	22.7	24.1	24.4
Number of other children in household						
0–1	28.8	46.4	50.1	52.3	53.5	54.5
2–3	46.7	40.8	41.0	40.8	39.8	39.5
4 or more	24.4	12.8	8.9	7.0	6.7	6.1

NOTE: Information on parents' educational attainment and employment status is available only for those parents who live in the same household with their child. Percentages for employment status were based on the total population, not just those in the labor force.

The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. In 1994, the survey instrument for the CPS was changed and weights were adjusted. These changes may affect the comparability of current statistics to those derived from earlier surveys.

Percentages may not sum to 100.0 due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March 1972–97 (selected years).

Figure 1a.—Percentage distribution of 6- to 12-year-olds, by mother's highest education level: 1972–97

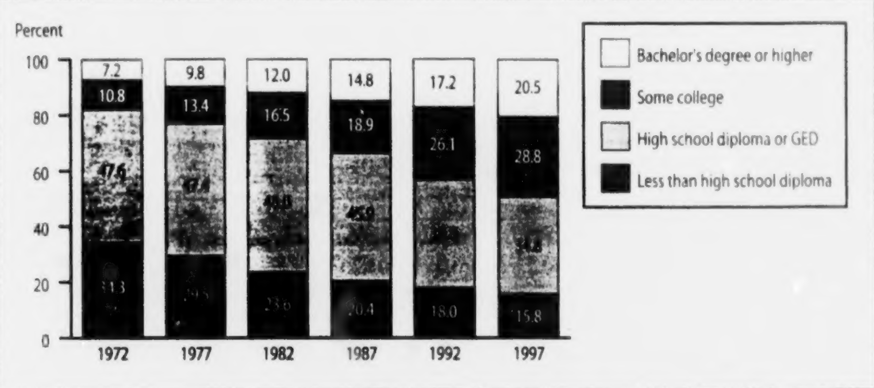


Figure 1b.—Employment status of parents of 6- to 12-year-olds: 1972–97

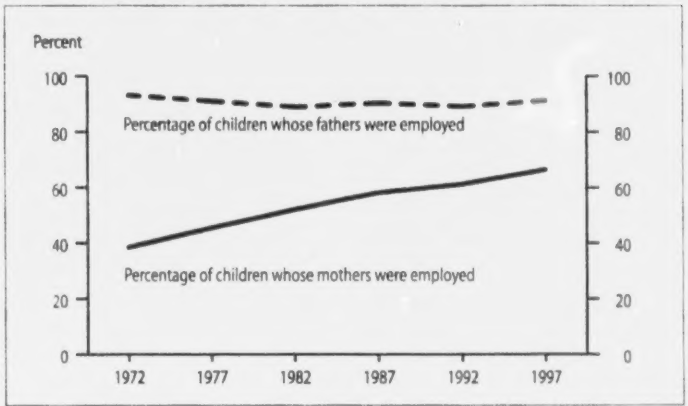
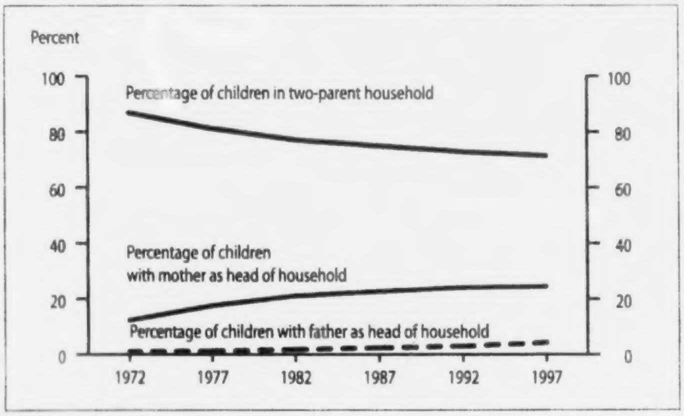
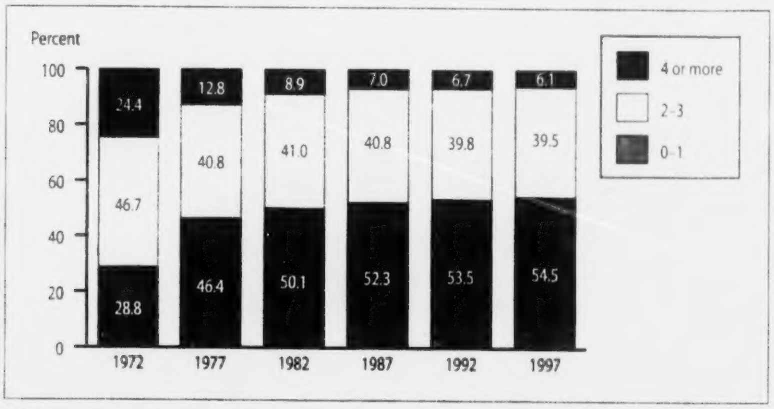


Figure 1c.—Family type of 6- to 12-year-olds: 1972–97



See notes under figure 1d on next page.

Figure 1d.—Percentage distribution of 6- to 12-year-olds, by number of other children in household: 1972–97



NOTE: Information on parents' educational attainment and employment status is available only for those parents who live in the same household with their child. Percentages for employment status were based on the total population, not just those in the labor force.

The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. In 1994, the survey instrument for the CPS was changed and weights were adjusted. These changes may affect the comparability of current statistics to those derived from earlier surveys.

Percentages may not sum to 100.0 due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March 1972–97 (selected years).

Data source: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March 1972–97 (selected years).

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

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Teachers' Feelings of Preparedness

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999*. The sample survey data are from the "Teacher Survey on Professional Development and Training," conducted through the NCES Fast Response Survey System (FRSS).

Reform initiatives, new technologies, and changing student populations have required teachers to learn new ways of presenting material and managing their classrooms. Teachers' initial professional training may not have prepared them adequately to meet current expectations, so continuing professional development is important. Teachers' self-assessments provide one indication of the extent to which preservice and on-the-job learning prepare them to meet the new demands.

- In 1998, the majority of public school teachers (71 percent) felt that they were very well prepared to maintain order and discipline in their classrooms (table 1).
- Fewer teachers felt that they were very well prepared to meet certain instructional requirements, including implementing new teaching methods (41 percent), implementing state or district curriculum and performance standards (36 percent), or using student performance assessment techniques (28 percent).
- Teachers were least likely to report that they felt very well prepared to integrate educational technology into their teaching methods (20 percent), or to address the needs of students with disabilities (21 percent) or of students with limited English proficiency or from diverse cultural backgrounds (20 percent).
- Teachers who spent more than 8 hours in professional development in the content area of a specific activity in the previous 12 months were generally more likely than other teachers to feel very well prepared in that area. The exception was the area in which teachers felt most prepared: maintaining order and discipline in the classroom (figure 1).

Table 1.—Percentage distribution of public school teachers according to how well prepared they felt to perform various activities in the classroom, and the percentage of teachers who felt very well prepared, according to the number of hours spent in professional development in that content area in the last 12 months, by activity: 1998

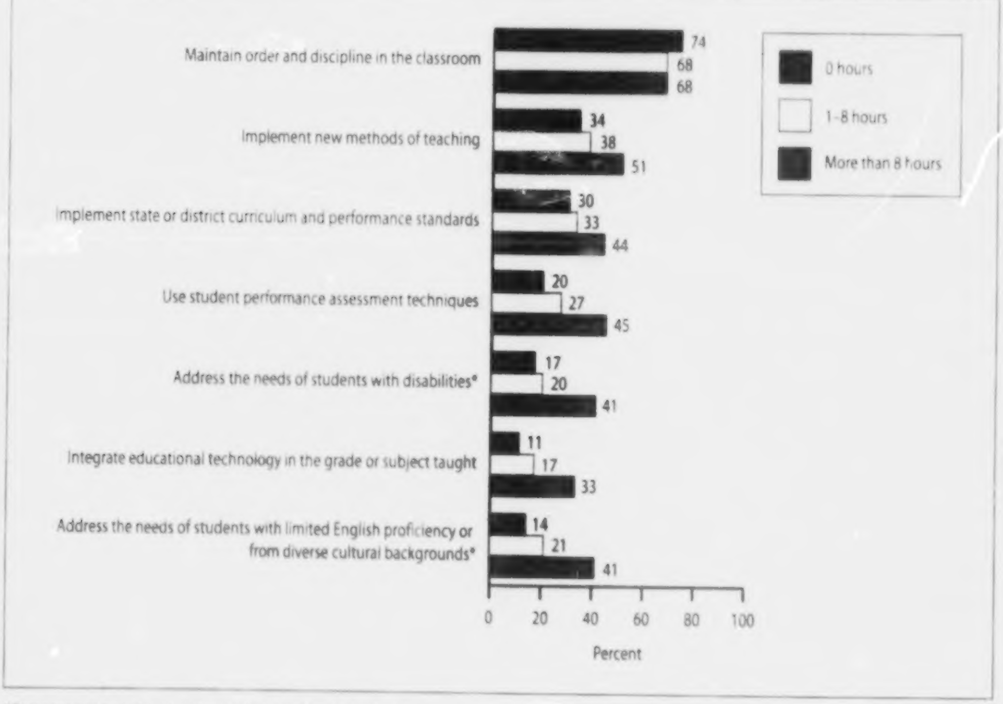
	How well prepared teachers felt				Very well prepared: Hours of professional development		
Activity	Very well prepared	Moderately well prepared	Somewhat well prepared	Not at all prepared	0 hours	1–8 hours	More than 8 hours
Maintain order and discipline in the classroom	71	24	4	1	74	68	68
Implement new methods of teaching (e.g., cooperative learning)	41	41	16	2	34	38	51
Implement state or district curriculum and performance standards	36	41	20	3	30	33	44
Use student performance assessment techniques (e.g., methods of testing, applying results to modify instruction)	28	41	26	4	20	27	45
Address the needs of students with disabilities*	21	41	30	7	17	20	41
Integrate educational technology in the grade or subject taught	20	37	34	9	11	17	33
Address the needs of students with limited English proficiency or from diverse cultural backgrounds*	20	33	30	17	14	21	41

*Percentages based on teachers who teach such students.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Teacher Survey on Professional Development and Training," FRSS 65, 1998.

Figure 1.—Percentage of public school teachers who felt they were very well prepared to perform various activities in the classroom, according to the number of hours spent in professional development in that content area in the last 12 months, by activity: 1998



*Percentages based on teachers who teach such students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Teacher Survey on Professional Development and Training," FRSS 65, 1998.

Data source: The NCES Fast Response Survey System, "Teacher Survey on Professional Development and Training," FRSS 65, 1998.

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., and Smerdon, B. (1999). *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (NCES 1999–080).

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What Are the Barriers to the Use of Advanced Telecommunications for Students With Disabilities in Public Schools?

Sheila Heaviside, Cassandra Rowand, David Hurst, and Edith McArthur

This article was originally published as an Issue Brief. The sample survey data are from the "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," conducted through the NCES Fast Response Survey System (FRSS).

As schools become more technologically advanced, questions arise about access to these advancements for all types of students. Although studies have suggested that advanced telecommunications and computers may be especially beneficial for students with disabilities (e.g., Johnson 1986), providing access to computers and advanced telecommunications for students with disabilities may be considerably more costly than providing access for students without disabilities, since students with disabilities may require alternative input/output devices or other costly adaptations. This issue brief focuses on school reports of access to advanced telecommunications for students who receive special education and related services. Such students are referred to as "students with disabilities" in the remainder of this issue brief.

In 1996, a nationally representative survey conducted by the National Center for Education Statistics (NCES) queried approximately 1,000 school administrators about the use of advanced telecommunications in their school. For this survey, advanced telecommunications were defined as *modes of communication used to transmit information from one place to another, including broadcast and interactive television, networked computers, etc.* This survey also included two questions about students with disabilities and their use of advanced telecommunications. The first question asked schools to report the percentage of students that received special education and related services. The survey found that in the fall of 1996, approximately 11 percent of students attending regular public elementary and secondary schools received special education and related services. The second question asked administrators to report the extent to which five barriers hindered the use of advanced telecommunications by students with disabilities. These data provide insights about the access of students with disabilities to advanced telecommunications.

Do Students With Disabilities Attend Schools Where Students Have Access to the Internet?

Access to and use of advanced telecommunications in public schools have opened a multitude of new opportunities for American students and their teachers. Through the Internet, students are gaining access to many of the world's largest and best-equipped libraries and communicating with authors and experts around the world—all without leaving their school buildings. Brought about by the presence and application of telecommunications and technologies in classrooms, labs, and libraries, these opportunities are spreading at a rapid rate. Between 1994 and 1998, the proportion of regular public schools with Internet access increased from 35 to 89 percent (Rowand 1999).

In fall 1996, 65 percent of public schools had Internet access (Heaviside, Riggins, and Farris 1997), and 73 percent of these schools indicated that students had access to the Internet, either through e-mail, newsgroups, or the World Wide Web. The proportion of students with disabilities attending regular public schools with Internet access was similar to that for students without disabilities. In fall 1996, 51 percent of students with disabilities and 51 percent of students without disabilities attended regular public schools where students had access to the Internet (table 1).

Are There Barriers to the Use of Advanced Telecommunications by Students With Disabilities?

Public schools were asked about five possible barriers to the use of their advanced telecommunications resources by students with disabilities. The factor schools were most likely to cite as a moderate or major barrier (47 percent) was special education teachers not being sufficiently trained in using advanced telecommunications[1] (table 2). Fewer public schools cited not having enough computers available to students with disabilities (34 percent), not having enough computers with alternative input/output devices for students with disabilities (38 percent), and inadequate evaluation and support services to meet the special technology needs of students with disabilities (39 percent).

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[1] A survey in 1995 found that 61 percent of schools reported lack of or inadequately trained staff as a major or moderate barrier to using advanced telecommunications in all schools (Heaviside, Farris, and Malitz 1996), and a 1998 survey found that 20 percent of regular classroom teachers in public schools reported feeling "very well prepared" to integrate technology into classroom instruction (Lewis et al. 1999).

Table 1.—Percent of students in regular public schools where students have access to the Internet, by student disability status: Fall 1996

School characteristics	Percent of public school students with Internet access		
	Total	Students without disabilities	Students with disabilities
All public schools	51	51	51
Instructional level			
Elementary	42	42	43
Secondary	67	68	67
Students eligible for free or reduced-price lunch			
10 percent or less	64	64	68
11 to 30 percent	60	60	63
31 to 70 percent	44	45	41
71 percent or more	32	31	35

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

Are Barriers to Advanced Telecommunications Use by Students With Disabilities Greater in Some Schools Than in Others?

Public schools with higher concentrations of poor students, as measured by the proportion of students in the school eligible for the federally funded free or reduced-price lunch program, were generally more likely to report moderate or major barriers to the use of advanced telecommunications by students with disabilities (table 2). For example, the proportion of regular public schools reporting insufficient training of special education teachers in the use of advanced telecommunications as a moderate or major barrier was 37 percent for schools with the fewest poor students compared to 58 percent for schools with the highest proportion of poor students.[2]

School size, but not the percentage of students with disabilities (table 2), was related to the likelihood of reporting some of the five factors as moderate or major barriers. Large schools (those with enrollments of 1,000 or more students) were more likely than small schools (enrollments under 300 students) to report lack of alternative input/output devices and insufficient training in advanced telecommunications among special education teachers as moderate or major barriers to the use of the school's advanced telecommunications resources by students with disabilities.

Do Policies on Teacher Training in the Use of Advanced Telecommunications at the School Relate to Administrators' Citing Lack of Training of Special Education Teachers as a Barrier?

As discussed above, the barrier to providing access to advanced telecommunications for students with disabilities most frequently cited by schools was lack of sufficiently trained special education teachers. One item on the questionnaire asked school administrators to report on the type of advanced telecommunications training available to all teachers at their school. Responses to the two items (types of training available to all teachers, and administrators' perceptions of lack of training of special education teachers) were examined to see if they were related. Public schools in which participation in advanced telecommunications training for all teachers was encouraged by incentives were less likely to report that lack of training for special education teachers was a moderate or major barrier than other schools. Thirty-seven percent of schools with incentives for all teachers to participate in telecommunications training reported special education teacher training as a moderate or major barrier, compared to 50 percent of schools where training for all teachers was mandated and 52 percent of schools in which training for all teachers was left up to the initiative of the individual teacher (table 3).

Further, when a school reported that training for all teachers was provided by the school or district, that school

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[2] This pattern was evident for four of the five barriers by the poverty measure. The exception was whether administrators saw advanced telecommunications as relevant for the instruction of disabled students.

Table 2.—Number of regular public schools enrolling students with disabilities, and the percent of these schools indicating barriers to the use of advanced telecommunications by students with disabilities: Fall 1996

School characteristics	Number of schools enrolling students with disabilities*	Percent indicating factor a moderate or major barrier: Special education teachers are not sufficiently trained to use	Insufficient evaluation and support services to meet special technology needs	Too few computers with alternative input/output devices	Too few computers available to students with disabilities	Telecommunications not seen as relevant for many students with disabilities by administrators
All public schools	76,100	47	39	38	34	16
Percent of students with disabilities						
1 to 9 percent	28,100	42	40	35	32	12
10 to 15 percent	30,800	48	35	38	32	18
16 percent or more	16,800	53	44	44	42	20
Percent of students eligible for free or reduced-price lunch						
10 percent or less	13,400	37	25	26	23	11
11 to 30 percent	21,800	41	38	36	33	13
31 to 70 percent	29,000	52	42	42	36	20
71 percent or more	11,500	58	49	50	45	21
Size of enrollment						
Less than 300	19,400	40	35	33	30	11
300 to 999	49,300	48	39	39	35	18
1,000 or more	7,300	56	46	49	39	18

*Ninety-seven percent of regular public schools enrolled students with disabilities. The number of schools in each category has been rounded to the nearest 100.

NOTE: Details may not sum to total due to rounding and due to missing data on the school characteristic variables.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

Table 3.—Percentage distribution of regular public schools according to teacher training policies for all teachers and the extent lack of teacher training is a barrier to the use of advanced telecommunications by students with disabilities: Fall 1996

School policy and practice related to advanced telecommunications training for all teachers in a school	Total	Degree to which lack of telecommunications training for special education teachers is a barrier: Not a barrier	Minor barrier	Moderate or major barrier
Policies on training				
Mandated by district, school, or teacher certification agencies	13	28	21	50
Encouraged by incentives	31	32	30	37
Left to teacher's initiative	52	26	22	52
Type of training provided by school or district				
Use of computers				
Yes	91	29	25	45
No	9	30	9	61
Use of advanced telecommunications				
Yes	62	31	28	41
No	38	26	17	57
Integration of technology into curriculum				
Yes	73	31	26	42
No	27	23	18	59

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

was less likely than schools that did not report providing training for all teachers to report that lack of training for special education teachers was a moderate or major barrier to the use of advanced telecommunications by students with disabilities (table 3). Schools were asked about whether training was available on use of computers, use of advanced telecommunications, or integration of technology into the curriculum. From 41 to 45 percent of schools where these types of training were available for all teachers indicated special education teacher training was a moderate or major barrier compared with 57 to 61 percent of schools where such training was not available for all teachers.

Summary

Students with disabilities were as likely to be enrolled in schools where students have Internet access as were those without disabilities (51 percent of both groups) in fall 1996. Insufficiently trained special education teachers was the most frequently cited moderate or major barrier (47 percent) to the use of advanced telecommunications by students with disabilities. But this factor was less of a barrier in schools where training in advanced telecommunications was available for all teachers and where incentives were provided to all teachers to participate in such training. About one-third of public schools reported the following factors were moderate or major barriers to the use of advanced telecommunications by students with disabilities: too few computers available to students with disabilities, too few computers with alternative input/output devices for students with disabilities, and insufficient evaluation and support services to meet the special technology needs of students with disabilities. Generally, barriers to such use by disabled students were more frequently cited in schools with higher proportions of poor students and in larger schools.

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Rowand, C. (1999). *Internet Access in Public Schools and Classrooms: 1994–98* (NCES 1999–017). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data source: The NCES Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

For technical information, see the following report:

Heaviside, S., Riggins, T., and Farris, E. (1997). *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97–944).

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Internet Access in U.S. Public Schools and Classrooms: 1994–99

Catrina Williams

This article was originally published as a Stats in Brief. The sample survey data are from several surveys—listed at the end of this article—on advanced telecommunications and Internet access in U.S. public schools. These surveys were conducted through the NCES Fast Response Survey System (FRSS).

In 1994, the White House's National Information Infrastructure (NII) initiative challenged the nation's schools and classrooms to connect to the Internet by the year 2000. In that year, the U.S. Department of Education commissioned the National Center for Education Statistics (NCES) to track the rate at which public schools and classrooms were meeting this goal. Since 1994, NCES has surveyed nationally representative samples of approximately 1,000 public schools in the fall of each academic year on Internet access and, since 1996, on the types of Internet connections used.

How Much Progress Have Public Schools Made Connecting to the Internet?

The most recent survey of Internet access indicates that public schools in the United States have nearly reached the goal of connecting every school to the Internet. The percentage of public schools connected to the Internet has increased each year, from 35 percent in 1994 to 95 percent in 1999 (table 1).

In earlier years, access to the Internet varied by school characteristics. In some previous surveys, for example, secondary schools, schools with lower concentrations of students in poverty (as measured by eligibility for free or reduced-price lunches), and suburban schools were more likely to have Internet access than other schools. By 1999, these differences had disappeared; all schools, regardless of level, poverty concentration, and metropolitan status, were equally likely to have Internet access.

How Much Progress Have Public Schools Made in Connecting Classrooms?

In 1994, 3 percent of all U.S. public school instructional rooms* were connected to the Internet; by 1999, 63 percent were connected (table 1). Classroom connectivity is expected to continue to grow due to the allocation of funds through the Education rate (E-rate) program, which was established to make services and technologies in telecommunications available to schools and libraries at discounted rates based upon the income level of the students in their community and whether their location is urban or rural. The poorest applicants receive the largest discounts (90 percent), and rural communities receive up to a 10 percent additional discount. As of November 22, 1999, $1.9 billion has been committed to E-rate programs throughout the nation (Universal Service 1999).

Differences by school characteristics remain regarding Internet access in instructional rooms (table 1). For example, 39 percent of instructional rooms had Internet access in schools with high concentrations of poverty (71 percent or more students eligible for free or reduced-price lunches), compared with 62 to 74 percent of instructional rooms in schools with lower concentrations of poverty. The percentage of instructional rooms with Internet access in public schools with high concentrations of poverty did not increase between 1998 and 1999, while there were increases in the percentage of connected instructional rooms in schools with lower concentrations of poverty.

What Is the Ratio of Students per Computer?

According to the President's Committee of Advisors on Science and Technology (1997, 21), 4 to 5 students per computer is the ratio "that many experts consider to represent a reasonable level for the effective use of computers within the schools." In 1999, the ratio of students per instructional computer in public schools was approximately 6, the same as in 1998 (not shown). Overall, within types of schools, ratios of students to instructional computer stayed the same or decreased slightly between 1998 and 1999.

The ratio of students per instructional computer with *Internet access* decreased from 12 to 9 from 1998 to 1999, although differences remain across schools with different characteristics (table 1). For example, medium-sized and large schools had more students per computer with Internet access than small schools, 9 and 10 students compared to 6 students. Schools located in cities had more students per computer with Internet access (11) than schools in rural areas (7). The largest differences occurred in schools with

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*Instructional rooms include classrooms, computer and other labs, library/media centers, and any other rooms used for instructional purposes.

Table 1.—Percent of public schools with Internet access, percent of instructional rooms with Internet access in public schools, and ratio of students per instructional computer with Internet access, by school characteristics: Selected years 1994 to 1999

School characteristics	Percent of public schools with Internet access				Percent of instructional rooms with Internet access in public schools				Students per instructional computer with Internet access	
	1994	1996	1998	1999	1994	1996	1998	1999	1998	1999
All public schools	35	65	89	95	3	14	51	63	12	9
Instructional level[1]										
Elementary	30	61	88	94	3	13	51	62	13	11
Secondary	49	77	94	98	4	16	52	67	10	7
Size of enrollment										
Less than 300	30	57	87	96	3	15	54	71	9	6
300 to 999	35	66	89	94	3	13	53	64	12	9
1,000 or more	58	80	95	96	3	16	45	58	13	10
Metropolitan status										
City	40	64	92	93	4	12	47	52	14	11
Urban fringe	38	75	85	96	4	16	50	67	12	9
Town	29	61	90	94	3	14	55	72	12	8
Rural	35	60	92	96	3	14	57	71	9	7
Geographic region										
Northeast	34	70	90	94	3	10	39	56	13	9
Southeast	29	62	92	98	2	10	51	60	12	10
Central	34	66	90	93	3	19	61	70	10	7
West	42	62	86	95	5	15	51	68	14	10
Percent of students eligible for free or reduced-price school lunch										
Less than 11 percent	40	78	87	94	4	18	62	74	10	7
11 to 30 percent	39	72	94	96	4	[2]18	53	71	11	8
31 to 49 percent	33	62	94	98	2	[2]12	61	68	11	9
50 to 70 percent	31	53	88	96	4	[2]12	40	62	16	10
71 percent or more	19	53	80	90	2	[2]5	39	39	17	16

[1] Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

[2] Revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1995) *Advanced Telecommunications in U.S. Public Schools, K–12* (NCES 95-731); (1997) *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools: Fall 1996* (NCES 97-944); (1999) *Internet Access in Public Schools and Classrooms: 1994–98* (NCES 1999-017); and Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999.

varying concentrations of poverty. Schools with the highest concentration of poverty had 16 students per instructional computer with Internet access, compared to 7 among schools with the lowest concentration of poverty.

How Are Public Schools Connecting to the Internet?

Over the years, changes have occurred in the type of network connections used by public schools and the speed at which they are able to connect. In 1996, dial-up network connections were used by almost three-quarters of public schools (not shown). By 1999, more schools were using faster dedicated-line network connections. Sixty-three percent of the nation's public schools were connected to the Internet by dedicated lines, 14 percent used dial-up connections, and 23 percent of schools used other connection types, which included ISDN, wireless connections, and cable modems (table 2). Secondary schools (77 percent) and schools with the lowest concentration of poverty (72 percent) were more likely to connect to the Internet using dedicated lines than elementary schools (60 percent) and schools with the highest concentration of poverty (50 percent).

How Are Public Schools Funding Advanced Telecommunications?

Measuring funding is difficult as schools receive support for advanced telecommunications programs from a myriad of sources. Because of the complexity of this issue, measuring actual funding amounts was considered beyond the scope of this survey. However, the survey did list several potential sources of support and asked whether the school received hardware, software, or funding from the sources. About 9 out of 10 public schools reported receiving support from

Table 2.—Percent of public schools that use the following types of connections when connecting to the Internet, by school characteristics: Fall 1999

School characteristics	Types of network connections to the Internet		
	Dedicated line[1]	Dial-up connection	Other connection types[2]
All public schools	63	14	23
Instructional level[3]			
Elementary	60	15	25
Secondary	77	6	17
Size of enrollment			
Less than 300	64	21	15
300 to 999	63	12	26
1,000 or more	67	10	23
Metropolitan status			
City	62	15	23
Urban fringe	62	10	27
Town	64	13	24
Rural	66	18	16
Geographic region			
Northeast	60	16	24
Southeast	53	18	29
Central	68	14	19
West	70	9	21
Percent of students eligible for free or reduced-price school lunch			
Less than 11 percent	72	7	21
11 to 30 percent	65	10	24
31 to 49 percent	65	11	24
50 to 70 percent	63	21	17
71 percent or more	50	23	26

[1] Dedicated-line connections include T1/DS1, fractionalized T1, 56Kb, T3/DS3, and fractionalized T3 lines.

[2] Other connection types include ISDN, cable modem, wireless connections, and other types of network connections.

[3] Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

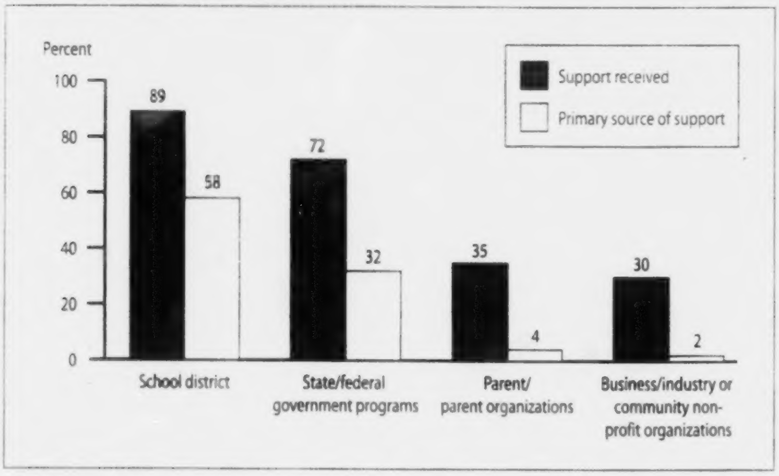
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999.

their school district, and 72 percent from state or federal government programs (figure 1). About a third of schools reported receiving support from parents and parent organizations, and about the same percentage received support from businesses. Fifteen percent of schools received support from teachers or students while 5 percent received support from other programs or individuals (not shown). School administrators were also asked to indicate the primary source of support. Schools most frequently cited the school district (58 percent), followed by state and federal programs (32 percent). This primary support was related to the school's poverty concentration: for example, state and federal government programs were cited as the primary source by 48 percent of schools with the highest concentration of poverty compared to the 14 percent of schools with the lowest concentrations of poverty; the school district was the primary source for 43 percent of highest poverty schools compared to 78 percent of schools with the lowest poverty (not shown).

Related Information

This survey is part of an overall effort of NCES to track the access and use of technology in schools and classrooms. More information from the series of public school surveys on advanced telecommunications and Internet access can be obtained from NCES publications (Heaviside, Farris, and Malitz 1995, 1996; Heaviside, Riggins, and Farris 1997; Bare and Meek 1998; Rowand 1999). In addition to collecting information from public schools, NCES surveyed private schools about advanced telecommunications in 1995 and 1998 (Heaviside and Farris 1997; Levin, Hurst, and Burns 2000). NCES has also collected information on teacher training in advanced telecommunications; a report on this topic is scheduled to be released in summer 2000.

Figure 1.—Percent of public schools that received hardware, software, or funding for advanced telecommunications from the following programs, organizations, or individuals and the primary source of support: Fall 1999



NOTE: Data were also collected for schools receiving hardware, software, or funding from teachers or students, and other sources.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999.

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Data sources: The following surveys, all conducted through the NCES Fast Response Survey System (FRSS): "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools: Fall 1996," FRSS 61, 1996; "Survey on Advanced Telecommunications in U.S. Public Schools: Fall 1997," FRSS 64, 1997; "Survey on Internet Access in U.S. Public Schools: Fall 1998," FRSS 69, 1998; and "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRS 75, 1999.

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Computer and Internet Access in Private Schools and Classrooms: 1995 and 1998

Doug Levin, David Hurst, and Shelley Burns

This article was originally published as a Stats in Brief. The sample survey data are from the "Survey on Advanced Telecommunications in U.S. Private Schools: 1998–1999" and the "Survey on Advanced Telecommunications in U.S. Private Schools, K-12," both conducted through the NCES Fast Response Survey System (FRSS).

In recent years, interest in increasing the use of technology in elementary and secondary education has grown. Numerous initiatives—both public and private—have provided discounted or free computers and Internet access to schools and have encouraged the provision of technology-focused teacher professional development and training (Trotter 1999). These initiatives were predicated on the expectation that the use of technology in education can lead to a number of beneficial outcomes. In *Getting America's Students Ready for the 21st Century*, for example, the U.S. Department of Education (1996) asserts that technology has the potential to enhance the achievement of all students, increase families' involvement in their children's schooling, improve teachers' skills and knowledge, and improve school administration and management.

To track changes in the availability of and access to technology, the National Center for Education Statistics (NCES) since 1994 has conducted a series of surveys of public and private elementary and secondary schools. This Stats in Brief provides results from the most recent survey of technology in private schools, focusing on trends in the availability of and access to technology from 1995 to 1998.[1] In addition, this Stats in Brief reports on the future connectivity plans of private schools not connected to the Internet and on the advanced telecommunications training opportunities private schools offer their teachers.

How Prevalent Are Computers in Private Schools?

The number of students per computer is the measure commonly used to provide an indication of the prevalence of computers in schools. In 1998, there was an average of six students per computer in private schools, down from nine students per computer in private schools in 1995 (table 1). In 1995 and in 1998, nonsectarian schools reported fewer students per computer on average than did Catholic schools and other religious schools, and the student-to-computer ratio was lower on average in private secondary than in private elementary schools.

Another common measure of the prevalence of computers in schools is the number of students per *instructional* computer.[2] This measure excludes computers that may be used exclusively for administrative or other noninstructional purposes. In 1998, the average number of private school students per instructional computer was eight (table 1). In *public* schools, there was an average of six students to each instructional computer in 1998 (Rowand 1999). Nonsectarian private schools had a lower average student-to-instructional computer ratio (6:1) than did Catholic schools (8:1) and other religious schools (9:1). In addition, the student-to-instructional computer ratio was higher in private elementary schools (8:1) than in private secondary or combined schools (7:1).

How Prevalent Is Internet Access in Private Schools and Classrooms?

The percentage of schools and the percentage of instructional rooms[3] with connections to the Internet are two measures commonly used to provide an indication of Internet access in schools. In 1998, 67 percent of private schools were connected to the Internet, up from 25 percent in 1995 (table 2). This 67 percent of private schools connected to the Internet enrolled 81 percent of all private school students (not shown in tables). In 1998, 89 percent of *public* schools had access to the Internet (Rowand 1999), representing 91 percent of all public school students.

The availability of Internet access in private schools varied somewhat by school characteristics. In 1995, Catholic and

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[1] The first survey of private schools was administered in October of 1995, and the second was administered in February of 1999. Because the second survey was administered during academic year 1998–99, it is referred to in this Stats in Brief as the 1998 survey. See Heaviside and Farris (1997) for a complete report on the results of the 1995 survey.

[2] In the 1998 survey, schools were asked how many computers in the school are used for "instructional purposes."

[3] Instructional rooms include classrooms, computer labs, library/media centers, and any other rooms used for instructional purposes (e.g., gymnasium).

Table 1.—Ratio of private school students to computers and to instructional computers, by school characteristics: 1995 and 1998

School characteristics	Number of students per computer 1995	Number of students per computer 1998	Number of students per instructional computer 1998
All private schools	9	6	8
Affiliation			
Catholic	10	7	8
Other religious	9	7	9
Nonsectarian	6	4	6
Instructional level			
Elementary	9	7	8
Secondary	7	5	7
Combined	8	5	7
Type of locale			
City	9	6	7
Urban fringe	8	6	8
Town	9	7	8
Rural	9	5	7
Percent minority enrollment			
Less than 6 percent	9	7	8
6 to 20 percent	7	6	7
21 to 49 percent	8	6	7
50 percent or more	11	8	10

NOTE: In the 1995 survey, schools were not asked to differentiate the number of instructional computers from the total number of computers. These ratios are based on the total number of students attending regular private schools, and not just those attending regular private schools that have computers or instructional computers.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Advanced Telecommunications in U.S. Private Schools: 1998–1999," FRSS 68, 1999; and (1997) *Advanced Telecommunications in U.S. Private Schools, K–12: Fall 1995* (NCES 97-394), table 10, p. A-5.

nonsectarian schools were more likely than those with other religious affiliations to have Internet access, while in 1998 Catholic schools were more likely than both nonsectarian and other religious schools to be connected to the Internet. In 1995 and in 1998, secondary schools were more likely than elementary and combined schools to have Internet access (table 2). Rural private schools were less likely than private schools in other locations to be connected to the Internet in 1995. In 1998, however, rural private schools were about as likely as private schools in other locations to be connected to the Internet.

Table 2 shows that the percentage of instructional rooms with access to the Internet in private schools increased, from 5 percent in 1995 to 25 percent in 1998. In that same year, 51 percent of *public* school instructional rooms were connected to the Internet (Rowand 1999). In 1998, 41 percent of instructional rooms in nonsectarian schools were connected to the Internet, compared with 27 percent of instructional rooms in Catholic schools and 18 percent of instructional rooms in other religious schools. Ten percent of instructional rooms in private schools with 50 percent or more minority enrollment had Internet access, compared with 27 to 32 percent of instructional rooms in schools with less than 50 percent minority enrollment.

Other ways to look at the availability of Internet access in private schools are the number of private school students per computer with Internet access and the number of private school students per *instructional* computer with Internet access. In 1995, there were about 99 private school students per computer with Internet access (table 3). By 1998, there were 12 private school students per computer with Internet access. In 1998, the ratio of students to *instructional* computer with Internet access was 15 to 1 (table 3).

Do Private Schools Not Connected to the Internet Have Plans to Do So in the Future?

While more private schools were connected to the Internet in 1998 than in 1995, 33 percent of private schools did not have Internet access in 1998. Of these schools, about half (46 percent) have plans to obtain access to the Internet in the future (table 2). Plans to connect to the Internet varied

Table 2.—Among private schools, percentage of schools and instructional rooms with Internet access, and among private schools without Internet access, percentage that have plans to gain access, by school characteristics: 1995 and 1998

	Schools with Internet access		Instructional rooms with Internet access*		Schools without access that have plans to gain Internet access
School characteristics	**1995**	**1998**	**1995**	**1998**	**1998**
All private schools	25	67	5	25	46
Affiliation					
Catholic	35	83	4	27	74
Other religious	16	54	2	18	41
Nonsectarian	32	66	13	41	38
Instructional level					
Elementary	23	64	3	21	46
Secondary	57	90	6	32	31
Combined	19	64	8	28	46
Type of locale					
City	32	72	6	27	64
Urban fringe	26	63	4	25	46
Town	22	65	5	21	38
Rural	4	58	1	21	12
Percent minority enrollment					
Less than 6 percent	24	59	3	28	13
6 to 20 percent	29	75	9	27	71
21 to 49 percent	29	76	3	32	59
50 percent or more	18	52	2	10	59

*The percentage of instructional rooms is based on the total number of instructional rooms (e.g., classrooms, computer labs, library/media centers) in all regular elementary, secondary, and combined private schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Private Schools: 1998–1999," FRSS 68, 1999; and (1997) *Advanced Telecommunications in U.S. Private Schools, K–12: Fall 1995* (NCES 97-394), table 11, p. A-6.

Table 3.—Ratio of private school students to computer with Internet access, and to instructional computer with Internet access, by school characteristics: 1995 and 1998

	Number of students per computer with Internet access		Number of students per instructional computer with Internet access
School characteristics	**1995**	**1998**	**1998**
All private schools	99	12	15
Affiliation			
Catholic	174	16	19
Other religious	171	14	18
Nonsectarian	25	5	7
Instructional level			
Elementary	206	20	24
Secondary	78	7	10
Combined	48	8	10
Percent minority enrollment			
Less than 6 percent	141	14	16
6 to 20 percent	58	11	14
21 to 49 percent	135	9	12
50 percent or more	235	28	33

NOTE: In the 1995 survey, schools were not asked to differentiate the number of instructional computers from the total number of computers. These ratios are based upon the total number of students attending regular private schools, and not just those attending regular private schools that have computers or instructional computers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Private Schools: 1998–1999," FRSS 68, 1999; and (1997) *Advanced Telecommunications in U.S. Private Schools, K–12: Fall 1995* (NCES 97-394), table 10, p. A-5.

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somewhat by school characteristics. Catholic schools were more likely to indicate that they had plans to connect to the Internet (74 percent) than other religious schools (41 percent) and nonsectarian schools (38 percent). Private schools in rural locations were less likely to indicate plans to acquire Internet access than were schools in city and urban fringe locations.

What Advanced Telecommunications Training for Teachers Do Private Schools Offer or Participate in?

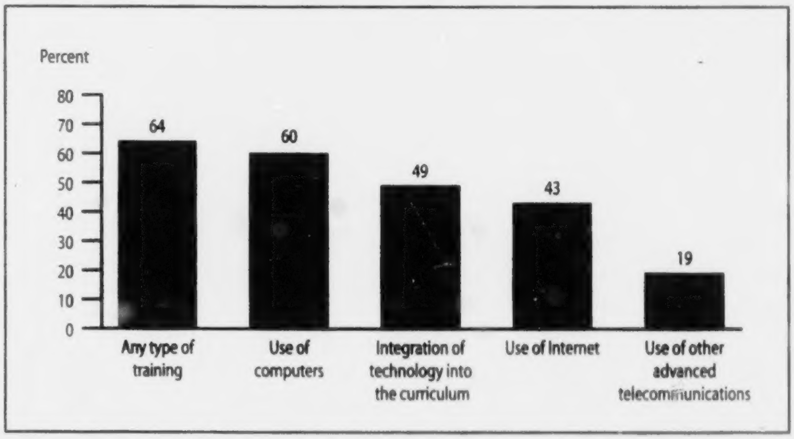
To provide information about the preparedness of private school teachers to use technology in their classrooms, items about the types of advanced telecommunications training private schools offered or participated in were included for the first time on the 1998 survey. In 1998, 64 percent of private schools offered or participated in some type of advanced telecommunications training for teachers (figure 1).

The most common type of training was on the use of computers, with 60 percent of private schools offering or participating in this type of training. Catholic schools were more likely than nonsectarian schools and other religious schools to offer or participate in training for teachers in computers, Internet access, and integrating technology into the curriculum (not shown in tables).

Additional Information

This Stats in Brief has described the marked increase in access to computers and the Internet among private schools and their students from 1995 to 1998. Over that time, the average student-to-computer ratio decreased from 9:1 to 6:1, while the percent of schools with access to the Internet increased from 25 to 67 percent. A full report (Parsad and Farris forthcoming) on the results of the 1998 survey ("Advanced Telecommunications in U.S. Private Schools: 1998–1999") will be released by NCES in the spring of 2000. The report will include additional information on computer and Internet availability, the use of advanced telecommunications, sources of support for advanced telecommunications, and similarities and differences with public schools.

Figure 1.—Percentage of private schools offering or participating in advanced telecommunications training for teachers, by type of training: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Private Schools: 1998–1999," FRSS 68, 1999.

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Data sources: The following surveys, conducted through the NCES Fast Response Survey System: "Advanced Telecommunications in U.S. Private Schools: 1998–1999," FRSS 68, 1999; and "Survey on Advanced Telecommunications in U.S. Private Schools, K–12," FRSS 56, 1995.

For technical information, see the following reports:

Heaviside, S., and Farris, E. (1997). *Advanced Telecommunications in U.S. Private Schools, K–12: Fall 1995* (NCES 97–394).

Parsad, B., and Farris, E. (forthcoming). *Survey on Advanced Telecommunications in U.S. Private Schools: 1998–99* (NCES 2000–045).

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Nutrition Education in Public Elementary School Classrooms, K–5

Carin Celebuski and Elizabeth Farris

This article was excerpted from the Introduction, Highlights, and Summary of the Statistical Analysis Report of the same name. The sample survey data are from the "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," conducted through the NCES Fast Response Survey System (FRSS).

Introduction

The impact of diet on health has been described and documented in numerous studies and reports. Dietary recommendations and long-term health objectives, including the *Dietary Guidelines for Americans* (U.S. Department of Agriculture and U.S. Department of Health and Human Services [HHS] 1995) and the Year 2000 Health Objectives for the Nation (HHS 1991), call for Americans to reduce intake of total fat, saturated fat, and cholesterol; increase intake of fruits, vegetables, grain products, and foods rich in calcium; and moderate intake of sugars, salt, and alcohol.

Because eating habits developed in childhood have the potential to last a lifetime, it is important for children to learn the benefits of good nutrition. *Healthy People 2000* (HHS 1991) states as a national health objective that by the year 2000, at least 75 percent of the nation's schools will provide nutrition education from preschool through 12th grade.

This report presents findings from the National Center for Education Statistics (NCES) "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," requested by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA). This survey, conducted in the spring of 1997 through the NCES Fast Response Survey System (FRSS), was designed as a follow-up to the 1996 survey "Nutrition Education in U.S. Public Schools, K–12," also conducted through the FRSS (Celebuski and Farris 1996).

The goal of this study was to provide a national picture of the quantity and quality of nutrition education in public elementary school classrooms to inform current and future USDA initiatives, including the School Meals Initiative for Healthy Children.[1] This initiative, begun in 1995, adds requirements for schools to serve meals that meet federal dietary guidelines and encourages schools to teach children about nutrition so they are motivated to make healthy food choices. A pilot program for schools, called Team Nutrition, aims to improve nutrition education in classrooms.

Highlights

Training to teach nutrition

About half of elementary school teachers (52 percent) have had formal training (i.e., college coursework or inservice training) to teach about nutrition (figure A).

Resources in support of nutrition education

With a few exceptions, teachers generally reported high availability of resources in support of nutrition education, including healthy cafeteria meals (82 percent), reference materials (74 percent), support for use of instructional time (70 percent), and a written policy or guidelines (57 percent) (table A). Fewer teachers reported availability of high-quality inservice training in nutrition education (27 percent) and a coordinated school nutrition policy (37 percent). By region, teachers from the Southeast reported greater availability of both these resources than teachers from other regions.

Despite research indicating the importance of the resources noted above, teachers do not view access to these resources as the only thing needed to improve nutrition education. About 30 percent of teachers indicated that healthy school cafeteria meals, support for use of instructional time, and reference materials at school would improve nutrition education to a great extent. About one-fifth indicated that high-quality inservice training would improve it to a great extent.

Nutrition education in the classroom

Eighty-eight percent of elementary school teachers reported that they taught lessons about nutrition to their students in the 1996–97 school year. More kindergarten through second-grade teachers (92 percent) taught nutrition than did third- through fifth-grade teachers (83 percent).

The mean number of hours spent in a school year on nutrition education by elementary school teachers who taught nutrition was 13, below the minimum of 50 hours thought to be necessary for impact on behavior.

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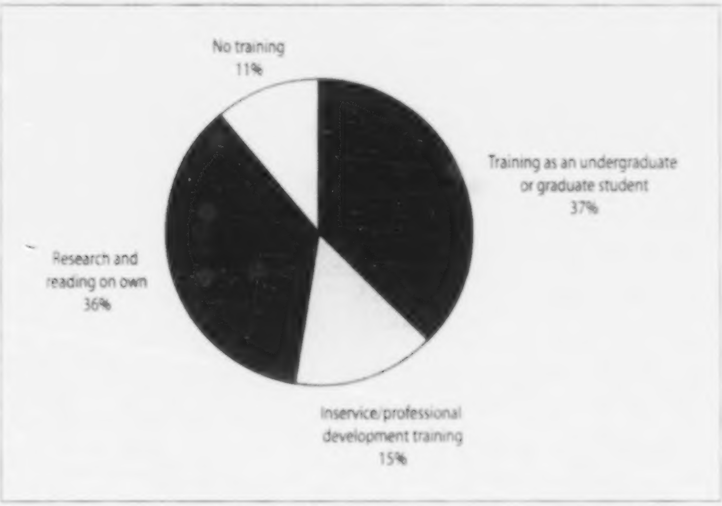
[1] This initiative is part of the implementation of the National School Lunch Program (7 CFR Parts 210 and 220).

Figure A.—Most formal method used by public elementary school teachers to prepare them to teach nutrition: 1997



NOTE: To provide an unduplicated count, responses to questions on training were recoded to four categories: training as an undergraduate or graduate student, inservice/professional development training, research and reading on own, and no training. Percents may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," FRSS 60, 1997. (Originally published as figure 2 on p. 6 of the complete report from which this article is excerpted.)

Table A.—Percent of public elementary school teachers, K–5, who reported the availability at their school of various resources in support of nutrition education, by geographic region: 1997

	Availability				
Nutrition education resource	**All teachers**	**Northeast**	**Southeast**	**Central**	**West**
High-quality inservice training	27	23	37	25	24
Healthy school cafeteria meals	82	79	87	78	82
Reference materials at school	74	73	82	70	71
Support for use of instructional time	70	61	75	75	69
Written guidelines on nutrition education	57	54	66	59	52
Coordinated school nutrition policy	37	33	48	37	33

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," FRSS 60, 1997. (Originally published as table 3 on p. 7 of the complete report from which this article is excerpted.)

Approximately one-third of teachers (35 percent) who taught nutrition taught it as a separate subject, and about the same proportion integrated nutrition lessons to a great extent into health and physical education (39 percent) and science (33 percent). Fewer of these teachers integrated nutrition lessons to a great extent into reading and language arts (14 percent), history and social studies (4 percent), and mathematics (5 percent).

Teachers reported they employed active learning strategies and did not rely exclusively on traditional lecturing methods for nutrition education. Active learning strategies, such as active discussion (57 percent), hands-on learning (29 percent), and collaborative work (27 percent), were used to a great extent by the most teachers. Teachers of grades K–2, teachers with higher levels of support for nutrition education from their schools,[2] and teachers with college training in nutrition education were all more likely to use some

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[2] Teachers were asked about the availability of six specific resources and policies in support of nutrition education at their school (see table A). Teachers reporting zero to three resources available to them were categorized as being in low-support schools; those reporting four to six resources were in high-support schools.

Table B.—Among public elementary school teachers, K–5, who taught nutrition, percent who used various teaching strategies to a moderate or great extent, by various characteristics: 1997

Characteristic	Teaching strategy used to a moderate or great extent*					
	Active discussion	Collaborative or cooperative work	Computers or other advanced technology	Hands-on learning	Role playing	Student projects
All kindergarten through fifth-grade teachers	92	72	11	69	32	40
Instructional level						
Kindergarten–second	91	73	9	75	37	37
Third–fifth	93	70	13	63	26	44
Level of support available from school						
0–3 resources	90	65	6	61	30	31
4–6 resources	94	78	15	76	34	48
Most formal training to teach about nutrition						
None	83	53	5	57	21	23
Research on own	93	70	9	65	26	39
Inservice	93	75	11	71	34	38
College coursework	93	76	12	75	39	45

*The response categories moderate extent and great extent were combined for this analysis.

NOTE: Does not include the 12 percent of teachers who did not teach nutrition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," FRSS 60, 1997. (Originally published as table 9 on p. 14 of the complete report from which this article is excerpted.)

active learning strategies to a moderate or great extent in their nutrition instruction (table B).

While about half (49 percent) of elementary school teachers who teach nutrition reported no barriers to cooperation with their school meals program staff in providing nutrition education, those who did report barriers tended to focus on the following: lack of instructional time and time on the part of the meals program staff, being unsure of what activities are possible, and difficulty of schedule coordination between teachers and meals program staff.

Working with parents

Teachers with high levels of support from their schools and teachers with college training in nutrition education utilized family involvement strategies for nutrition education more often than teachers with low levels of support and those with no training, respectively (table C). For example, teachers with high levels of support were more likely to include parents in nutrition homework assignments (85 percent) compared to teachers with low levels of support (66 percent); and teachers with college coursework in nutrition education were more likely to include parents in nutrition homework assignments (82 percent) compared to teachers with no training (48 percent).

Instructional materials for nutrition education

When teachers who taught nutrition were asked whether the instructional materials they used were of high quality, about one in four (24 percent) said they were up to date to a great extent, 41 percent said that they were age appropriate to a great extent, and 23 percent said that they were appealing to students to a great extent. About one in five (21 percent) reported having enough materials for all their students to a great extent, and about the same proportion (19 percent) reported that they did not have enough materials for all students.

Summary

The results of this survey show that nutrition education is going on in elementary school classrooms and that many of the instructional materials and techniques used are those that research indicates may be effective. However, the classroom time currently devoted to this topic may not be sufficient to change eating behaviors in students. Previous research (*Journal of Nutrition Education* 1995; Lytle 1995; Olson 1995) suggests that nutrition instruction might be improved through inservice training focusing on how to

- use active learning strategies,
- integrate nutrition lessons into other subjects, and
- involve families in nutrition education.

Teachers reported that they were interested in receiving inservice training about these topics. Those who received high support or had some types of training were more likely to do some of these things than teachers with low support or with no training, respectively. In addition, teachers with

Table C.—Percent of public elementary school teachers, K-5, who reported they or their schools used various strategies to any extent to involve parents in the nutrition education of their children, by various characteristics: 1997

	Strategy used to any extent*				
Characteristic	Including parents in homework assignments	Sending home educational materials	Inviting parents to attend special events	Inviting parents in nutrition careers to speak to class	Asking parents to give in-class demonstrations
All kindergarten through fifth-grade teachers	75	75	58	42	37
Geographic region					
Northeast	74	78	45	38	36
Southeast	81	79	84	52	45
Central	72	76	52	42	35
West	75	71	51	39	33
Level of support available from school					
0–3 resources	66	66	46	31	28
4–6 resources	85	85	70	54	47
Most formal training to teach about nutrition					
None	48	60	41	24	25
Research on own	75	75	55	37	30
Inservice	81	81	61	45	41
College coursework	82	78	65	52	46

*The response categories small extent, moderate extent, and great extent were combined for this analysis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Nutrition Education in U.S. Public Schools: Elementary Teacher Survey, K–5," FRSS 60, 1997. (Originally published as table 14 on p. 20 of the complete report from which this article is excerpted.)

inservice training were more likely to use instructional materials that were up to date and age appropriate than teachers with no training.

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For technical information, see the complete report:

Celebuski, C., and Farris, E. (2000). *Nutrition Education in Public Elementary School Classrooms, K–5* (NCES 2000–040).

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To obtain the complete report (NCES 2000–040), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Title I Migrant Education Program Summer-Term Projects: 1998

Basmat Parsad, Sheila Heaviside, Catrina Williams, and Elizabeth Farris

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the "Survey on Participation of Migrant Students in Title I Migrant Education Program (MEP) Summer-Term Education Projects," conducted through the NCES Fast Response Survey System (FRSS).

Introduction

Migrant students are a unique at-risk population. They face frequent educational interruptions as their families relocate to obtain seasonal or temporary employment in agriculture or fishing. In addition, migrant students' academic difficulties may be compounded by other problems, including poverty, language barriers, and unique health problems. To provide supplemental instructional and support services that address the special needs of these students, Congress first legislated the Migrant Education—Basic Grant Program (MEP) under Title I, Part C, of the Elementary and Secondary Education Act of 1966, and reauthorized the program in 1994. A key requirement of the program is the maintenance and timely transmission of student records when the students change schools.

Summer-term projects are an important component of MEP. They are designed to provide continuity of instruction for migrant students who experienced educational disruptions during the school year (U.S. Department of Education 1999).

To investigate the services provided by MEP summer-term projects and to document the record maintenance and transmittal procedures used by these projects, a nationally representative survey of 1998 MEP summer-term projects was conducted by the National Center for Education Statistics (NCES) through its Fast Response Survey System (FRSS). Specifically, information was collected on (1) project characteristics, including enrollment size, type of population served, and technical assistance received from the project's state; (2) types of instructional and social support services offered, such as reading and math instruction, health services, transportation, and food; and (3) projects' student records systems, including the types of student information available and the ways in which records are transmitted, received, and used by MEP summer-term projects.

Key Findings

Project characteristics

About 1,700 MEP summer-term projects operated in 1998 (table A). These projects provided instructional and support services for about 262,000 migrant students during that time. MEP summer-term projects operated an average of 6 weeks during 1998. These projects typically began in June (69 percent) or July (21 percent) and ran through July (50 percent) or August (40 percent).

Most MEP summer-term projects operating in 1998 were small: 58 percent of the projects had student enrollments of less than 100, while 21 percent of the projects had enrollments of 100 to 250, and another 21 percent of projects had enrollments greater than 250. MEP summer-term projects were more likely to serve students of all ages than only elementary-age students (63 percent compared with 34 percent). Projects were also more likely to be located in rural than suburban communities (54 percent compared with 36 percent), and least likely to be found in urban communities (11 percent).

Types of services offered by MEP summer-term projects

To help migrant students meet their state's content and performance standards, a top priority of MEP summer-term projects is to provide a range of supplemental educational instruction for these students. MEP summer-term projects operating in 1998 provided instructional services in core academic areas (reading, other language arts, math, science, and social science) and other instructional areas and activities. Most of the projects provided instruction in reading (96 percent), other language arts (88 percent), and math (87 percent), although they were less likely to provide science instruction (57 percent) or social science instruction (48 percent). A substantial proportion of MEP summer-term projects also provided instruction in other areas. For example, a majority of the projects (69 percent) offered bilingual education, about half offered preschool education, and close to one-third offered special education and GED or high school equivalency instruction.

Migrant children were provided with specific support services to overcome some of the problems that might impede their ability to do well in school. The most common support services provided by MEP summer-term projects were home-school liaison/social worker/advocate (84 percent of projects), transportation (78 percent), and meals (68 percent) (figure A). Projects were less likely to provide medical or dental treatment, personal life counseling,

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Table A.—**Number and percentage distribution of Migrant Education Program (MEP) 1998 summer-term projects and total number, percentage distribution, and mean number of migrant students served by MEP summer-term projects, by selected project characteristics: 1998**

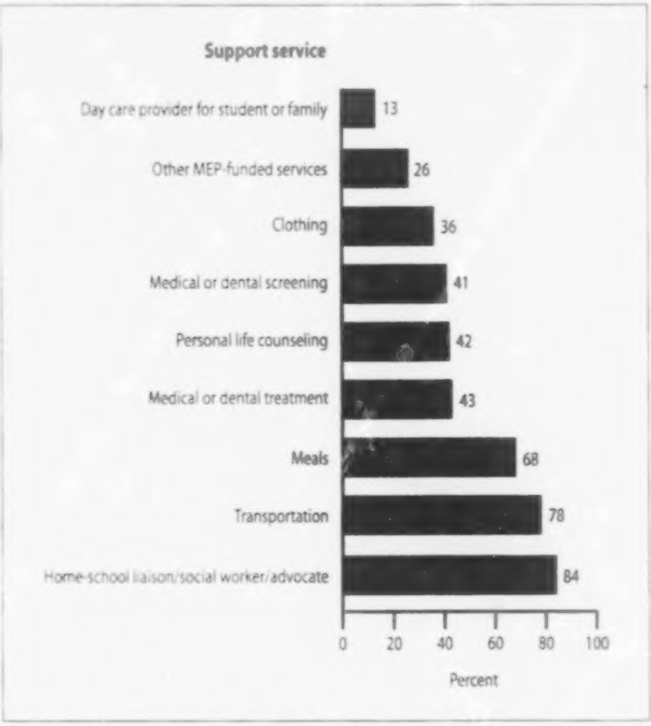
Project characteristic	Summer-term projects		Students served		
	Number	Percent	Total	Percent	Mean
All	1,712	100	262,367	100	162
Enrollment size of project					
Less than 100	995	58	33,995	13	34
100–250	353	21	57,116	22	162
Over 250	364	21	171,256	65	642
Student population served*					
Elementary-age students only	586	34	49,194	19	85
Students of all ages	1,071	63	206,272	79	216
Metropolitan status					
Urban	177	11	68,349	26	391
Suburban	589	36	104,587	40	185
Rural	882	54	80,391	31	99

*Estimates are not reported for projects serving secondary-age students only because too few 1998 MEP summer-term projects served students at this level. Data for students of all ages are included in the totals and in analyses by other MEP characteristics.

NOTE: Detail may not add to totals because of rounding or missing data. Percentages are computed within each classification variable, but may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Participation of Migrant Students in Title I Migrant Education Program (MEP) Summer-Term Education Projects," FRSS 62, 1998. (Originally published as table 2 on p. 7 of the complete report from which this article is excerpted.)

Figure A.—**Percent of Migrant Education Program (MEP) summer-term projects providing various support services to students during the summer-term project: 1998**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Participation of Migrant Students in Title I Migrant Education Program (MEP) Summer-Term Education Projects," FRSS 62, 1998. (Originally published as figure 7 on p. 19 of the complete report from which this article is excerpted.)

medical or dental screening, and clothing (from 36 to 43 percent), and they were least likely to provide day care services for their students' families (13 percent).

The proportion of MEP summer-term projects offering various support services—medical or dental screening, meals, medical or dental treatment, clothing, transportation, home-school liaison, and day care—differed somewhat by enrollment size; projects with enrollments of fewer than 100 students were less likely than larger projects to provide any of the services. For example, the proportion of projects offering meal services ranged from 56 percent for projects with fewer than 100 students to 84 percent for larger projects.

Availability and transmission of migrant student records

Timely transfer of student records is important to provide continuity in addressing the needs of migrant students (U.S. Department of Education 1999). To explore the extent to which MEP summer-term projects in 1998 had immediate access to student records, the survey asked about the proportion of students for whom academic records, student portfolios, or other indicators of school performance were available. Records were available at the start of the project for 74 percent of students. These records were most likely already on file because the majority of students served by the projects were enrolled in the school district for at least part of the 1997–98 school year. For students without available records at the start of the project, records for 10 percent were obtained within the first week of attendance, and records for an additional 4 percent of the students were received after the first week. However, for 12 percent of students enrolled in 1998 MEP summer-term projects, various academic records were never obtained.

Almost all MEP summer-term projects (90 percent) reported that information on last grade completed was available for all or most of their students. In addition, about half of the projects had records containing achievement test scores for all or most of their students, and 41 percent of the projects had transcript records for all or most of their students. Reporting on the availability of other types of student data, about two-thirds of MEP projects indicated that health data and information on students' limited English proficiency were available on records for all or most of their students.

Projects reported that a majority of migrant students' records were already on file (74 percent). For records not already on file, 7 percent were obtained by request from the students' previous schools, 4 percent were automatically sent by the previous schools, 4 percent were obtained through a multistate electronic database, 3 percent were obtained through a state MEP office, 3 percent were hand-carried by parents, and 2 percent were obtained through an informal briefing with the students' previous schools.

Forwarding records to the students' next schools was the most common method of transmitting student records at the completion of the 1998 summer term; 60 percent of the projects indicated they always or usually transmitted records this way (figure B). Projects were less likely to report that they always or usually held records until they were requested by the students' next schools (44 percent) or that they forwarded records to the state MEP office (44 percent). They were least likely to forward records to a multistate MEP database (24 percent) or to give records to students to hand-carry (11 percent).

Reference

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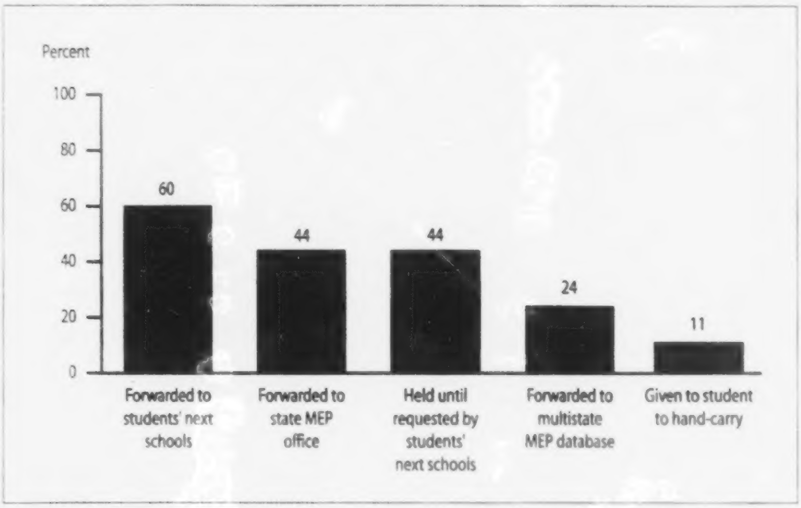
Figure B.—Percent of Migrant Education Program (MEP) summer-term projects indicating that they always or usually forwarded MEP student records in various ways: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Participation of Migrant Students in Title I Migrant Education Program (MEP) Summer-Term Education Projects," FRSS 62, 1998. (Originally published as figure 12 on p. 29 of the complete report from which this article is excerpted.)

Data source: The NCES Fast Response Survey System, "Survey on Participation of Migrant Students in Title I Migrant Education Program (MEP) Summer-Term Education Projects," FRSS 62, 1998.

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Trends in Disparities in School District Level Expenditures per Pupil

William Hussar and William Sonnenberg

This article was excerpted primarily from the Introduction and Summary of the Statistical Analysis Report of the same name. The universe and sample survey data are from the U.S. Census Bureau's "Annual Survey of Government Finances: School Systems."

Background

There has been a continuing interest in measuring disparities between districts in public elementary and secondary education finances over the years. One major reason for this comes from the judiciary: many state courts determined that their state's constitution requires a more equal distribution of funds (Hickrod et al. 1997). In 1994, a second reason emerged: the U.S. Congress reauthorized Title I of the Elementary and Secondary Education Act as a part of the Improving America's Schools Act, in which one educational disparity measure, the coefficient of variation, was to be used in one formula to allocate funds.[1] No funds have been allocated using that formula. But just the existence of such legislation points to the interest that legislatures have in educational disparity measures. Legislative action and court decisions have ensured that the study of educational disparity measures continues to occupy a prominent place in the minds of policymakers and analysts.

Content of This Report

This report examines disparity between districts in education expenditures in elementary and secondary schools for the period from 1979–80 to 1993–94. Included are results for each state and also for geographic regions and the nation as a whole. The report uses data on instructional expenditures per pupil in individual districts from the U.S. Census Bureau's "Annual Survey of Government Finances: School Systems" (F-33) for school years 1979–80 through 1982–83 and 1985–86 through 1993–94. The database was edited for such errors as the placement of school districts in incorrect states.

One factor that impacts any analyses concerning disparity is that there are various types of school districts, even among the regular school districts, which provide general classroom instruction. There are three types of regular districts: those that serve predominately elementary grades; those that serve predominately secondary grades; and those that are unified, serving both elementary and secondary grades. There are also other types of districts that provide administrative services or provide instruction for disabled students, or serve other specialized purposes. This report focuses on the most common type of district, the regular unified district.[2] It examines only disparity between districts and does not examine within-district disparity.

This report uses seven different measures of educational disparity, each of which evaluates distributions of expenditures by school districts differently: the coefficient of variation, the Gini coefficient, the Theil coefficient, the McLoone index, the federal range ratio, and two versions of Atkinson's index. These seven measures present a cross-section of the different educational disparity measures that are available.

Trends in Disparities

A majority of the disparity measures indicated a decline in disparity in most states and in the four geographic regions between 1979–80 and 1993–94 but an increase in disparity for the nation as a whole.

Disparity within states

For 27 of the 49 states with at least two unified school districts, the seven disparity measures unanimously indicated declining disparity (table A). For 11 other states, a majority of the measures indicated declining disparity. For only 1 state did all seven measures indicate increasing disparity. A majority of the measures indicated increasing disparity for 10 other states.

Regional differences among states. The results show clear regional differences among the states regarding increasing or decreasing disparity. Six of the states for which a majority of disparity measures indicated increasing disparity were in the Midwest, and four were in the West. Only one state in the Northeast and none in the South had a majority of the disparity measures indicating increasing disparity.

Implications of declines in disparity. For each of the states for which the measures fell, the decline in disparity does not necessarily mean the state has a more equitable distribution of education expenditures, as the percentage and distribution of special needs students may have changed over that period. This report does not differentiate what

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[1] The coefficient of variation is part of the formula for allocating grant funds under the Education Finance Incentive Program (section 1125A of the 1994 legislation).

[2] In a separate appendix of the complete report, educational disparity measures are presented for regular elementary districts, regular secondary districts, and all regular districts combined.

Table A.—Number of states indicating decreasing disparity, by region and the number of disparity measures: 1980 to 1994

Region	Total number of states with two or more districts	Number of measures indicating decreasing disparity							
		7	6	5	4	3	2	1	0
United States	49	27	8	3	0	5	3	2	1
Northeast	9	6	1	1	0	1	0	0	0
Midwest	12	4	2	0	0	2	2	1	1
South	16	12	4	0	0	0	0	0	0
West	12	5	1	2	0	2	1	1	0

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Annual Survey of Government Finances: School Systems," school years 1979–80 through 1982–83 and 1985–86 through 1993–94, unpublished tabulations.

policymakers and analysts may see as acceptable disparity (e.g., increased spending for special education or compensatory education) from those judged to be unacceptable (e.g., those that are simply from differences in districts' wealth).

Disparity within regions

When the seven disparity measures were calculated for each of the four geographic regions, the results were consistent with the results for individual states. For three of the regions (the Northeast, South, and West), all of the disparity measures indicated declining disparity. A majority of the measures also indicated declining disparity for the Midwest.

Disparity for the nation as a whole

While the results indicated declining disparity in most of the states and all of the regions, six of the seven disparity measures indicated increasing disparity for the nation as a whole. Disparity between school districts increased for the nation as a whole in part because instructional expenditures per pupil increased at different rates in different parts of the country.

Data Issues

Some of the findings concern the difficulty in analyzing school district finance data.

Effect of database problems on the analysis

Many problems were discovered in the database, especially for the earlier years; significantly fewer problems were found for the later years. Although considerable time was spent examining and correcting the database, it is probable that uncorrected problems still remain and that most of these problems are also for the earlier years. This might be a factor in the finding that disparity in a majority of states has fallen over time, as the problems are likely to increase the amount of disparity that is observed with the disparity measures.

Effect of outliers on the analysis

In any particular year, some states had a small number of outliers—that is, districts with either extremely high or extremely low instructional expenditures per pupil. It is frequently impossible to determine which of the unusual expenditure data are correct and which are incorrect (i.e., result from errors in the database). Therefore, a small number of districts with very high or very low expenditures were excluded from the main analysis. In four case studies, however, the disparity measures were calculated both with and without outliers in order to illustrate the different impacts that outliers can have. In some instances, if outliers had been included in the analysis, they would have affected at least some of the disparity measures.

Summary

Four main conclusions arise from this study:

- First, disparity in instructional expenditures among school districts seems to have decreased within many, but not all, of the states between 1980 and 1994.
- Second, in a small number of states, disparity seems to have increased during the same period of time.
- Third, in a significant number of states, the disparity measures lead to inconsistent results.
- And fourth, disparity among school districts seems to have increased for the nation as a whole due, in part, to differences in the growth path for instructional expenditures per pupil in different parts of the country.

For each of the states for which the measures fell, the decline in disparity does not necessarily mean the state has a more equitable distribution of education expenditures, as the percentage and distribution of special needs students may have changed over that period.

The other conclusions concern the database itself. Substantial problems with this database make financial analyses very challenging, particularly for the earlier years in the study. At a basic level, many districts were assigned erroneous codes that placed them in the wrong state, and there were other districts that had no state code at all. While a significant amount of editing was done, many problems remained. Another category of problems was the existence of outliers—districts with either extremely large or small expenditures per pupil. These outliers, even small ones, can have a substantial effect on the results.

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Data source: U.S. Department of Commerce, Bureau of the Census, "Annual Survey of Government Finances: School Systems," school years 1979–80 through 1982–83 and 1985–86 through 1993–94.

For technical information, see the complete report:

Hussar, W., and Sonnenberg, W. (2000). *Trends in Disparities in School District Level Expenditures per Pupil* (NCES 2000–020).

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To obtain the complete report (NCES 2000–020), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

State Profiles of Public Elementary and Secondary Education: 1996–97

Victor Bandeira de Mello and Beth Aronstamm Young

This article was excerpted from the Introduction and Wyoming State Profile in the Statistical Analysis Report of the same name. The universe data are primarily from the NCES Common Core of Data (CCD). Additional sources of universe and sample survey data are listed at the end of this article.

Introduction

Examinations of the status and quality of education in the United States are often based on comparisons among states. Comparisons of this type are most useful, valid, and constructive when states are examined alongside other states with similar characteristics. It is also helpful to have a variety of factors that are important to public education conveniently arrayed for individual states.

State Profiles of Public Elementary and Secondary Education: 1996–97 is the third in a series of publications reporting summary data on the general characteristics, fiscal revenues and expenditures, education agency and school numbers and sizes, and students and staff for each state, the District of Columbia, Department of Defense Dependents Schools (Overseas), and the five outlying areas—American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, and the Virgin Islands.

The factors for which these data are reported are those most commonly used to present a thumbnail sketch of the resources, needs, organization, and special characteristics of education within a state. When available, equivalent data for the 1987–88 school year are presented side by side with the 1996–97 data to help in the assessment of changes over a 10-year period. This information is displayed in numeric and graphic form to make it useful for a wide range of audiences and purposes.

This report is divided into three major sections:

- *U.S. Profile*, summarizing the statistics across the 50 states and the District of Columbia on all variables;
- *Ranking of the States*, consisting of a collection of tables depicting the relative position of the various states and the District of Columbia on selected variables; and
- *Profiles of the States and Outlying Areas*, providing numeric and graphic information, listed alphabetically with Department of Defense Dependents Schools and the outlying areas appearing after the states.

Profiles of Public Elementary and Secondary Education

The bulk of this report consists of the state-level profiles, each 8 pages long and featuring the same set of tables and figures. (By way of illustration, this article excerpts several examples from the Wyoming profile.) Each profile presents five categories of relevant information:

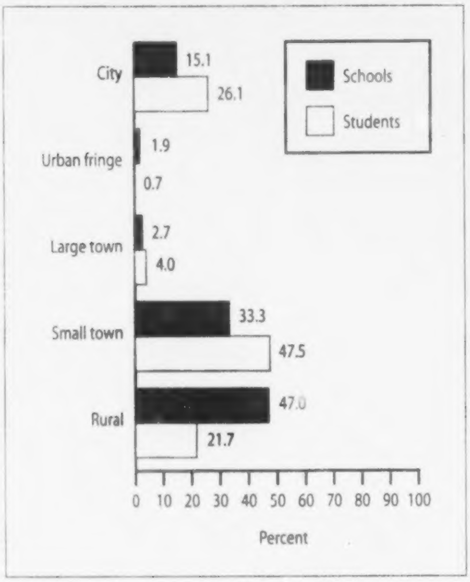
- *General characteristics:* demographic (table A) and fiscal characteristics of the state, as well as the numbers of students, teachers, and public schools.
- *Agency/school information:* membership characteristics and sizes of schools and education agencies, grade levels in schools, and proportion of students and schools in different locales (figure A).
- *Student information:* the numbers and ethnic backgrounds of students, the numbers of high school completers and dropouts, and achievement levels for students in selected grades (table B).
- *Staff information:* the numbers and proportions of instructional, support services, and administrative staff (table C); average student/teacher ratios; salary information; and teacher characteristics.
- *Fiscal information:* revenue and expenditure data for elementary and secondary education (table D), as well as federal aid to education under selected programs.

Table A.—Selected demographic data for the state of Wyoming: 1987 and 1996

Demographics	1987	1996
Students in public elementary and secondary schools	98,455	99,058
Public schools	389	411
Teachers in public elementary and secondary schools	6,798	6,729
Land area in square miles	97,914	97,914
Public school students per square mile	1	1
Public schools per 100 square miles	0.4	0.4

SOURCE: U.S. Department of Education, National Center for Education Statistics: Common Core of Data (CCD), school years 1987–88 and 1996–97; and *State Profiles of Public Elementary and Secondary Education: 1991–92* (NCES 95-668). (Originally published as the Wyoming "Demographics" table on p. 429 of the complete report from which this article is excerpted.)

Figure A.—Percentage distribution of Wyoming public schools and students by type of locale: 1996



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), school year 1996–97. (Originally published as figure 3 for Wyoming, on p. 431 of the complete report from which this article is excerpted.)

Table B.—Mathematics and science achievement levels for 4th- and 8th-graders in Wyoming public schools: 1996

1996 Mathematics and Science achievement levels	Grade 4	Grade 8
Average Mathematics scale score (scale 0 to 500)	223.2	274.8
Students below basic level	36.0%	31.7%
Students at or above basic level	64.0%	68.3%
Students at or above proficient level	18.8%	21.6%
Students at advanced level	1.3%	2.5%
Average Science scale score (scale 0 to 300)	—	157.5
Students below basic level	—	28.5%
Students at or above basic level	—	71.5%
Students at or above proficient level	—	33.5%
Students at advanced level	—	1.9%

—Not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics: *NAEP 1996 Mathematics Report Card for the Nation and the States* (NCES 97-488) and *NAEP 1996 Science Report Card for the Nation and the States* (NCES 97-497). (Originally published as the Wyoming table of achievement levels on p. 433 of the complete report from which this article is excerpted.)

Table C.—Number and percentage distribution of educational staff in Wyoming public schools: 1987 and 1996

	1987		1996	
Educational staff	Percent	Number	Percent	Number
Total educational staff	100	13,373	100	13,337
Instructional staff				
Teachers	50.8	6,798	50.5	6,729
Instructional aides	9.5	1,266	10.7	1,424
Support staff				
Guidance counselors/directors	1.3	170	2.1	285
Librarians/library support	1.0	133	2.5	335
Administrative support	8.2	1,102	6.2	830
Other support services	24.3	3,247	24.0	3,196
Administrators				
School-based	2.4	324	2.5	334
School district officials/administrators	2.5	333	1.5	204

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), school years 1987–88 and 1996–97. (Originally published as the Wyoming "Educational staff" table on p. 434 of the complete report from which this article is excerpted.)

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Table D.—Revenues and expenditures for public elementary and secondary education in Wyoming: Fiscal years 1987 and 1996

Revenues and expenditures (in current dollars)	FY 88	FY 97
Revenues (in thousands of dollars)	$568,402	$656,713
Revenue per pupil in membership	5,773	6,630
Current expenditures (in thousands of dollars)	466,921	591,488
Current expenditures per pupil in membership	4,742	5,971

SOURCE: U.S. Department of Education, National Center for Education Statistics: Common Core of Data (CCD), school year 1996–97; and *Digest of Education Statistics: 1991* (NCES 91–697). (Originally published as the Wyoming "Revenues and expenditures" table on p. 436 of the complete report from which this article is excerpted.)

Data sources:

NCES: Common Core of Data (CCD), school years 1987–88 and 1996–97; the following editions of the *Digest of Education Statistics:* 1989 (NCES 89–643), 1990 (NCES 91–660), 1991 (NCES 91–697), 1992 (NCES 92–097), and 1997 (NCES 98–015); *State Profiles of Public Elementary and Secondary Education: 1991–92* (NCES 95–668); *NAEP 1996 Mathematics Report Card for the Nation and the States* (NCES 97–488); *NAEP 1996 Science Report Card for the Nation and the States* (NCES 97–497); and Schools and Staffing Survey (SASS), "Public School Teacher Questionnaire," 1987–88 and 1993–94.

U.S. Department of Commerce, Bureau of the Census: (1998) *State Population Estimates by Age and Sex: 1980 to 1992* (Current Population Reports, Series P25-1106); (1998) *Estimates of the Population of the U.S., Regions, and States by Selected Age Groups and Sex: Annual Time Series, July 1, 1990, to July 1, 1997;* (1989) *1988 State Government Finance Data, by State;* (1998) *1997 State Government Finance Data, by State* (available: *http://www.census.gov/govs/www/st97.html*); (1998) *Federal Expenditures by State for Fiscal Year 1997;* and Current Population Survey Supplement (March 1997).

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For technical information, see the complete report:

Bandeiro de Mello, V., and Young, B.A. (2000). *State Profiles of Public Elementary and Secondary Education: 1996–97* (NCES 2000–304).

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To obtain the complete report (NCES 2000–304), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

POSTSECONDARY EDUCATION

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Mapping the Road to College: First-Generation Students' Math Track, Planning Strategies, and Context of Support

Laura Horn and Anne-Marie Nuñez

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Education Longitudinal Study of 1988 Eighth-Graders (NELS:1988/1994).

College students whose parents have attained no more than a high school education are often referred to as "first-generation students." That is, they are the first generation in their immediate family to enroll in college. Increasing attention has been paid to this group of students as a means of increasing the diversity of college student populations. Because first-generation students cannot benefit from their parents' experiences in preparing for and applying to college, they may be at a distinct disadvantage in gaining access to postsecondary education. Thus, obtaining a better understanding of how to increase first-generation students' opportunities in preparing for college may help equalize their chances of benefiting from a college education.

This report compares the high school academic experiences of first-generation students with their peers from families where one or both parents either have some college education or are college graduates. Given the strong link between mathematics curricula and college enrollment (Riley 1997), the analysis of first-generation students' academic preparation focuses on mathematics coursetaking, beginning in the eighth grade. In addition, students' college planning activities and the extent to which parents and other key individuals are involved are examined.

The results of the study offer both negative and positive findings concerning the experiences of first-generation students. On the negative side, even after controlling for measures of academic achievement, family income, family structure (single vs. two parents), and other related characteristics, first-generation students were less likely than their peers to participate in academic programs leading to college enrollment. Consequently, they were much less likely to enroll in college within 2 years of graduating from high school. The disparity between first-generation students and their peers from families where at least one parent had attained a bachelor's degree was especially notable.

On the positive side, regardless of parents' educational attainment, students' achievement, and other related factors, students who completed mathematics programs beyond the level of algebra 2 substantially increased their chances of enrolling in a 4-year college. In addition, other factors, such as parents' participation in college preparation activities and students' receiving help from their high school in the application process, also increased students' chances of enrolling in college (at any level).

First-Generation Students

Just over one-quarter (27 percent) of 1992 high school graduates were first-generation students (figure A). Half of the first-generation students were from low-income families, in contrast to less than one-third of the students whose parents had some postsecondary education and less than 1 in 10 students whose parents were college graduates.[1] Compared to students whose parents had bachelor's degrees or higher, first-generation students were more likely to be Hispanic or black (non-Hispanic).

Algebra in the Eighth Grade

Taking algebra in middle school is considered the "gateway" to completing advanced mathematics courses in high school (Oakes 1990). Yet just 14 percent of first-generation students took high school-level algebra in the eighth grade, compared with 34 percent of students whose parents were college graduates (figure B). Even among eighth-graders who were proficient at the highest mathematics level tested,[2] a lower proportion of first-generation students (34 percent) than of students whose parents were college graduates (55 percent) took algebra in the eighth grade.

High School Mathematics

At the high school level, first-generation students were far less likely to complete any advanced-level mathematics

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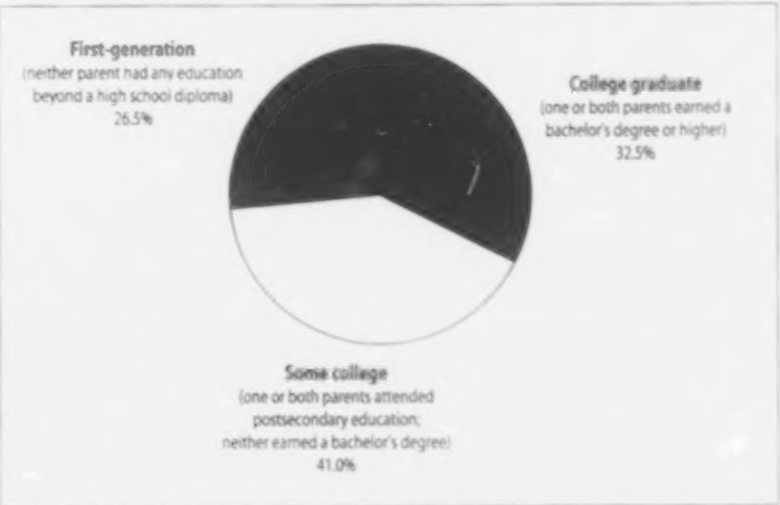
[1] In this report "parents were college graduates" means that at least one parent had attained a bachelor's degree.

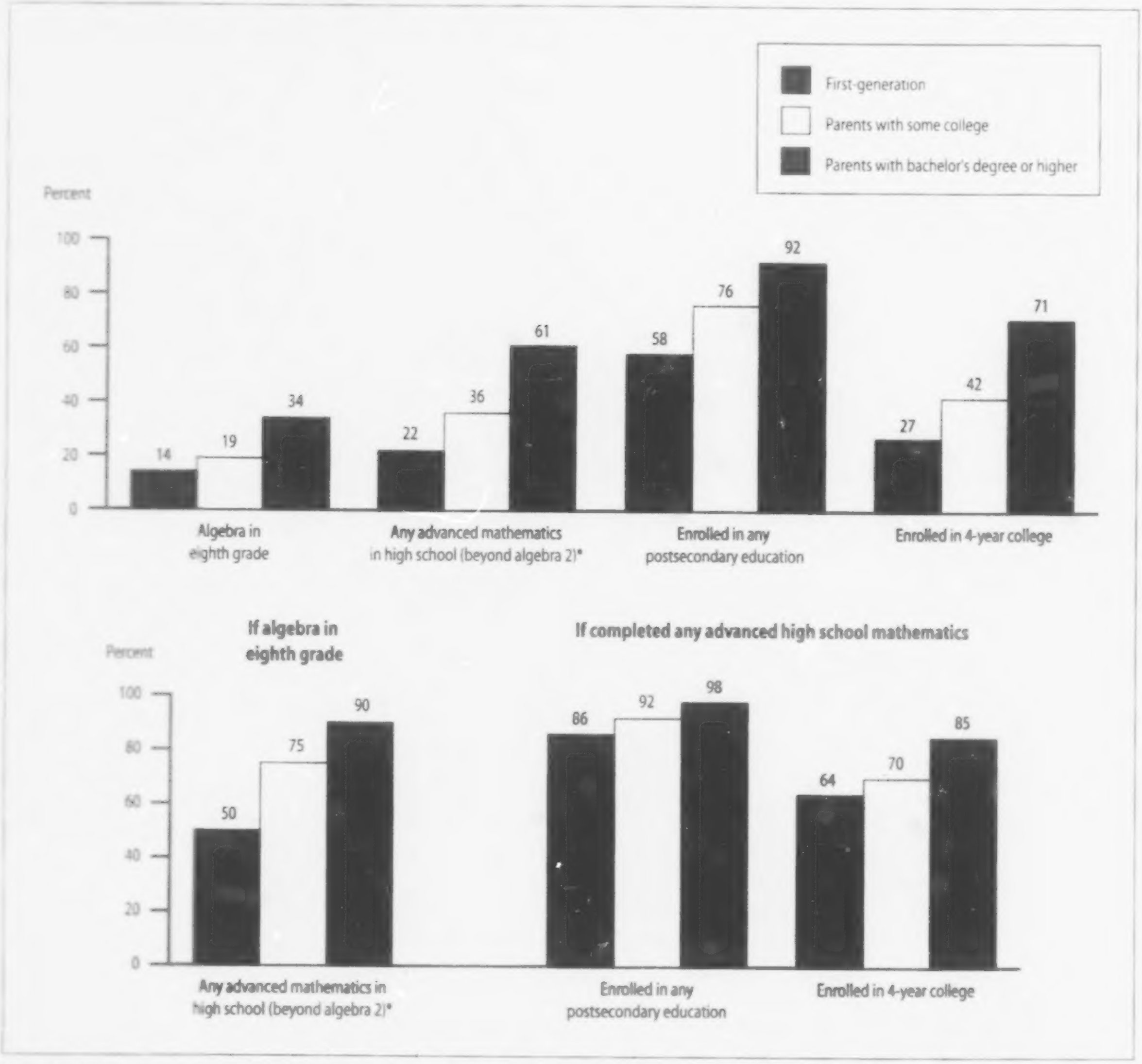
[2] Could perform simple problemsolving requiring conceptual understanding or the development of a solution strategy.

Figure A.—Percentage distribution of 1992 high school graduates, by first-generation status



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 Eighth-Graders (NELS: 1988/1994), Data Analysis System.

Figure B.—Percentage of 1992 high school graduates participating in advanced mathematics curricula and the percentage enrolled in postsecondary education, by first-generation status



*Completed at least one class beyond algebra 2 labeled "advanced," including precalculus, calculus, trigonometry, probability, statistics, and algebra 3.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 Eighth-Graders (NELS: 1988/1994), Data Analysis System.

courses[1] (figure C). Even among those who were proficient at the highest level tested in the eighth grade, 63 percent of first-generation students completed at least one advanced mathematics course in high school, compared with 83 percent of students whose parents were college graduates.

However, if students took algebra in the eighth grade, they were more likely to complete advanced-level mathematics courses in high school. This was true regardless of parents' education and students' mathematics proficiency. For example, while nearly two-thirds (63 percent) of first-generation students who were proficient at the highest level of mathematics tested in the eighth grade had completed advanced high school mathematics courses, 83 percent who

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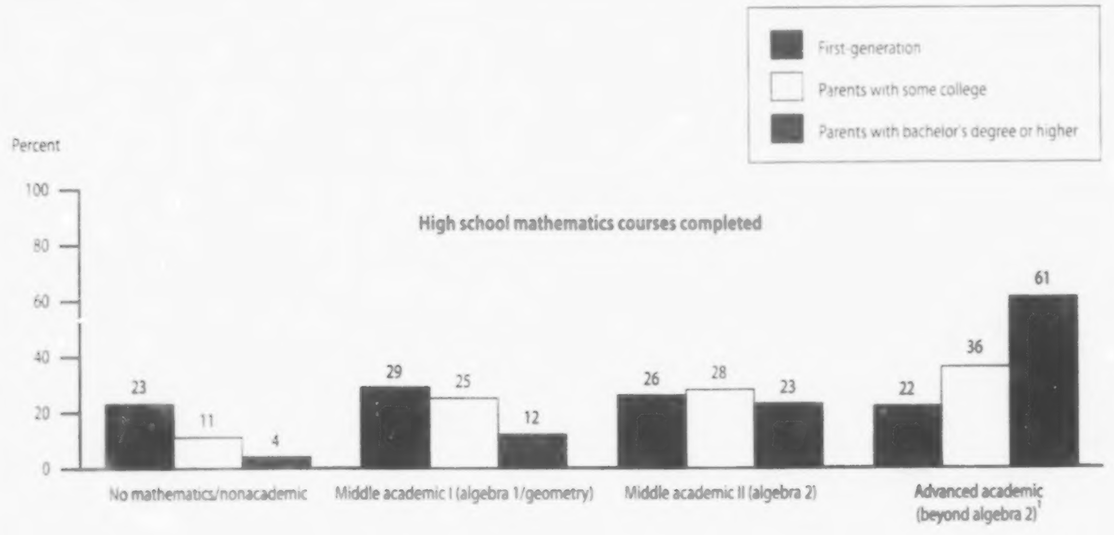
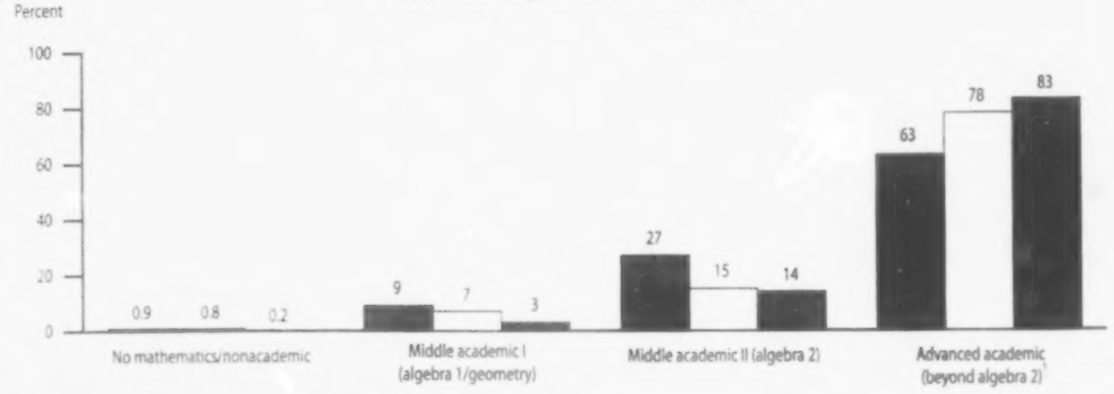
[1] Any course beyond algebra 2, such as precalculus, calculus, trigonometry, probability, statistics, or algebra 3.

Figure C.—Percentage distribution of 1992 high school graduates' highest level of mathematics courses completed in high school, by first-generation status



If proficient at highest level tested in eighth grade[2]



[1] Completed at least one class beyond algebra 2 labeled "advanced," including precalculus, calculus, trigonometry, probability, statistics, and algebra 3.

[2] Proficient at performing simple problemsolving requiring conceptual understanding or the development of a solution strategy.

NOTE: Detail may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 Eighth-Graders (NELS: 1988/1994), Data Analysis System.

took algebra in the eighth grade had done so. Comparable percentages for students whose parents were college graduates were 83 and 95 percent, respectively. In other words, taking algebra in the eighth grade was associated with substantially higher rates of participation in advanced mathematics courses, even while controlling for mathematics proficiency and parents' education.

College Enrollment

The rate at which students completed advanced-level high school mathematics courses had a direct bearing on whether or not they enrolled in a 4-year college within 2 years of graduating from high school. The relationship was especially evident for first-generation students: nearly two-thirds (64 percent) who completed any advanced courses enrolled, compared with about one-third (34 percent) who completed courses through algebra 2. Comparable percentages for students whose parents graduated from college were 85 and 63 percent, respectively.

Strong academic preparation, however, did not necessarily lead to college enrollment for all first-generation students. Two years after high school graduation, roughly one-quarter of first-generation students who were considered "highly qualified"[4] for admission to a 4-year college had not enrolled at the 4-year level, and 13 percent had not enrolled in any postsecondary education. In contrast, just 1 percent of highly qualified students who had at least one parent with a bachelor's degree did not enroll in any postsecondary education. Thus, even for the most academically prepared students, first-generation students were less likely to enroll in postsecondary education. The remainder of the analysis examined factors that might help explain such discrepancies in enrollment outcomes.

Who Encourages Students

The involvement of parents and other key individuals such as teachers, counselors, school principals, close relatives, and friends in students' curricular choices was explored as a factor that might help explain differences in curricular involvement and college enrollment patterns between first-generation and other students.

In eighth grade

Differences in parent involvement were apparent beginning in the eighth grade. As the level of parents' education increased, so did the proportion of eighth-graders who reported that their parents encouraged them to take algebra in the eighth grade. Just under one-third (31 percent) of first-generation students reported that their parents wanted them to take algebra, compared with 39 percent of those whose parents had some college and 53 percent of those whose parents were college graduates. Even when controlling for proficiency in mathematics, differences by parents' education levels prevailed.

On the other hand, whether or not eighth-graders reported being encouraged by teachers or school counselors to take algebra varied with their mathematics proficiency, not with their parents' education. For example, among first-generation students, 29 percent who performed below level 1 in mathematics proficiency[5] reported being encouraged by a teacher or counselor to take algebra in the eighth grade, compared with 47 percent who were proficient at the highest level of mathematics tested. Comparable percentages for students whose parents were college graduates were 33 percent and 54 percent, respectively.

In planning for their high school curriculum, eighth-graders relied heavily on their mothers for guidance. Students were much more likely to report frequently discussing (i.e., three or more times) their future high school programs with their mothers than with their fathers (60 vs. 43 percent). However, while frequent discussions with mothers varied little with parents' education, discussions with fathers increased as parents' highest education rose. About 34 percent of first-generation students, 41 percent of students whose parents had some college, and 50 percent of students whose parents were college graduates reported having frequent discussions with their fathers about their high school programs.

Perhaps because they were more likely to come from single-parent homes, first-generation students reported frequently discussing their high school programs more often with their friends (49 percent) than with their fathers (34 percent). The same was not observed for students whose parents were college graduates; among these students, roughly half reported frequently discussing their high school programs with either their friends or fathers.

In high school

Confirming the results found in the eighth grade, when 1992 high school graduates were asked in the 12th grade how they chose their high school programs, first-generation students were less likely than students whose parents were college graduates to report choosing their programs with their parents (34 vs. 48 percent). At the same time, first-generation students were no more likely to report choosing their high school programs with a teacher or counselor, or with friends.

Planning for college

In understanding what is required for college admission and navigating the application process, first-generation students may receive little assistance from their parents, who have had no direct experience in the process. Consequently, it might be expected that first-generation students would rely more on teachers, counselors, and other "knowledgeable agents" for guidance in applying to college. Yet, with two exceptions—getting school assistance in applying for financial aid and obtaining counselors' assistance in choosing a 12th-grade mathematics class—there was little evidence that first-generation students received help from the school more often than did students whose parents were college graduates. Moreover, the two instances in which first-generation students were more likely to receive school help came very late in their high school programs.

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[4] They were in the top 10 percent of 1992 high school graduates who enrolled in 4-year colleges, according to a college qualification index based on five academic performance criteria (class rank, GPA, NELS 1992 test scores, ACT score, and SAT score), with some adjustments made depending on whether students took programs of rigorous academic coursework.

[5] Could not perform simple mathematical operations on whole numbers.

Conclusions

The findings from this analysis indicate that first-generation students consistently trailed their counterparts whose parents were college graduates—and, to some degree, those whose parents had some college but less than a bachelor's degree—in participating in curricular activities linked to college enrollment. This remained true when controlling for academic preparation and other family background characteristics. That is, even high-achieving first-generation students were less likely to take algebra in the eighth grade and less likely to complete advanced high school mathematics courses. Correspondingly, college-qualified first-generation students with academic credentials similar to those whose parents graduated from college enrolled in 4-year colleges and other types of postsecondary education at lower rates than their counterparts.

However, when controlling for mathematics proficiency and parents' education, first-generation students increased their likelihood of completing advanced high school mathematics courses by taking algebra in the eighth grade (figure B). Taking advanced mathematics courses in high school, in turn, more than doubled their chances of enrolling in a 4-year college.

The data also indicated that parent involvement was strongly associated with students' taking algebra in eighth grade, taking advanced-level mathematics courses in high school, and subsequent enrollment in postsecondary education. This remained true after controlling for parents' education, mathematics proficiency, and family background characteristics. Therefore, it is possible that providing first-generation students and their parents with more information about choosing courses to better prepare students for college might help these students better navigate the path to higher education.

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Data source: The NCES National Education Longitudinal Study of 1988 Eighth-Graders (NELS:1988/1994).

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Students at Private, For-Profit Institutions

Ronald A. Phipps, Katheryn V. Harrison, and Jamie P. Merisotis

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Postsecondary Student Aid Study (NPSAS).

The 1992 reauthorization of the Higher Education Act (HEA) of 1965 contained provisions that mandated institutions participating in Title IV student assistance programs to meet significantly more rigorous eligibility conditions than were previously required. These provisions were added in an attempt to reduce fraud and abuse in the student aid programs. Since then, additional legislative and regulatory oversight mechanisms have been implemented. For-profit institutions—often called proprietary or private career schools—were an intended focus of these changes.

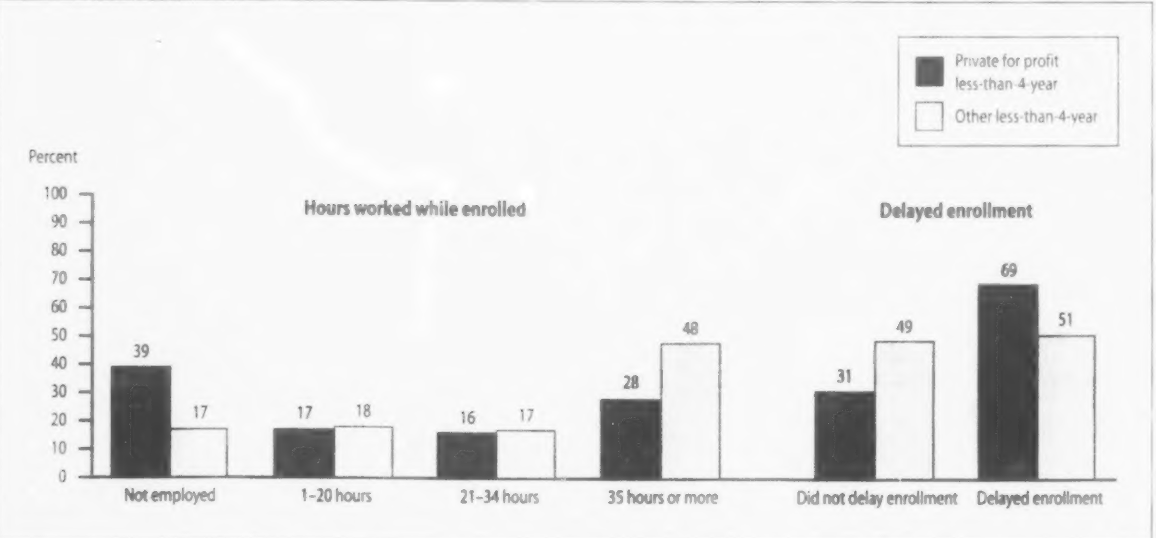
For-profit institutions have been influenced by these changes more than any other segment of the postsecondary education community. This sector's share of federal Stafford subsidized loan dollars awarded has declined from a peak of 28 percent in 1988–89 to 8 percent in 1995–96 (The College Board 1998). Between fiscal year (FY) 1992 and FY 94, the number of for-profit institutions participating in the Federal Family Education Loan (FFEL) program decreased by 14 percent. Furthermore, the share of federal Pell Grants awarded to students attending for-profit institutions fell from 19 percent in 1992–93 to 13 percent in 1995–96 (The College Board 1998). In light of these changes, it is important to explore how students at private for-profit institutions may have been affected.

Except as noted, all findings reported below apply to students at less-than-4-year institutions. Other less-than-4-year institutions are defined as public and private, not-for-profit institutions. Comparisons are made between the years 1992–93 and 1995–96.

Profile of Students

Students attending less-than-4-year, for-profit institutions in 1995–96 primarily were white (58 percent), age 23 or younger (46 percent), and female (67 percent). They were also independent (71 percent), delayed their enrollment for a year or more after high school (69 percent; figure A), attended full time for at least part of the academic year (80 percent), and worked while enrolled (61 percent; figure A).

Figure A.—Percentage distribution of undergraduates enrolled in less-than-4-year institutions according to selected characteristics, by control of institution: 1995–96



NOTE: Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:1996), Data Analysis System.

Compared to students at other less-than-4-year institutions in 1995–96, these students were more likely to be female, black, single parents, independent, and in the lowest income quartile (for both dependent and independent students).

With respect to enrollment characteristics, students at less-than-4-year, for-profit institutions in 1995–96 were more likely to have delayed their enrollment for a year or more after high school, have attended full time for at least part of the academic year, and have not worked while enrolled compared to students at other less-than-4-year institutions.

Between 1992–93 and 1995–96, there was little change in the demographic and enrollment characteristics of students at less-than-4-year, for-profit institutions. The same is true for their counterparts at other less-than-4-year institutions.

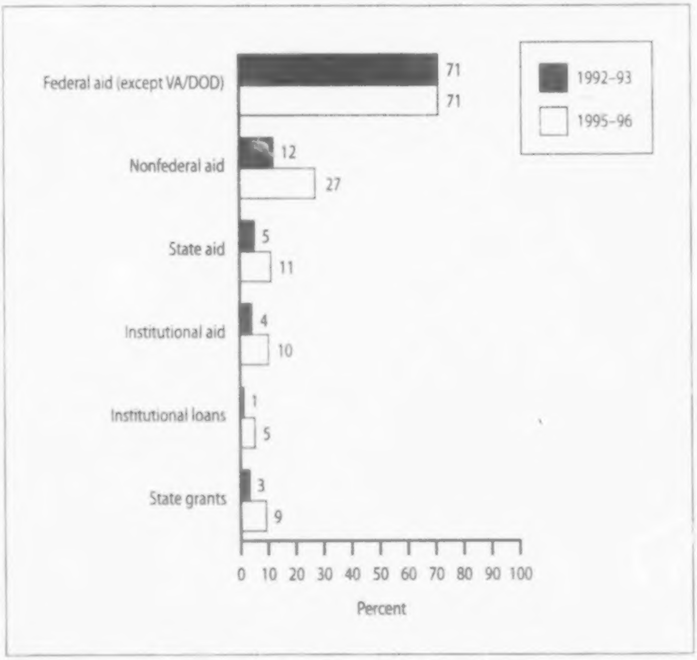
Paying for College

In 1995–96, students at less-than-4-year, for-profit institutions were more likely than students at other less-than-4-year institutions to have received any financial aid (78 percent compared to 36 percent), a loan from any source (56 percent compared to 9 percent), and a grant from any source (56 percent compared to 29 percent).

The federal government was the most extensive provider of financial aid to students at less-than-4-year, for-profit institutions in 1995–96 (figure B). Seventy-one percent received federal aid, 11 percent state aid, 10 percent institutional aid, and 2 percent employer aid. Sixty-six percent of aid recipients were awarded only federal aid.

Between 1992–93 and 1995–96, changes occurred in how students at less-than-4-year, for-profit institutions financed

Figure B.—Percentage of undergraduates enrolled in less-than-4-year, for-profit institutions who received financial aid from various sources: 1992–93 and 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 and 1995–96 National Postsecondary Student Aid Study (NPSAS:1993 and NPSAS:1996), Data Analysis System.

their educations. While the federal government remained the most extensive provider of student financial aid, the percentage of students receiving nonfederal aid rose from 12 percent to 27 percent (figure B).

Profile of Borrowers

Borrowers at less-than-4-year, for-profit institutions were more likely than nonborrowers to be age 23 or younger (50 percent compared to 41 percent). They were less likely to be in the highest income quartile. Nine percent of both dependent and independent borrowers were in the highest income quartile, compared to 28 percent and 16 percent, respectively, of nonborrowers.

Research on loan default identifies at least four risk factors associated with higher default levels (Dynarski 1994; Mathtech 1995). These factors include students who (1) are black, (2) are independent, (3) are from low-income families, and (4) do not have traditional high school diplomas. Of borrowers at less-than-4-year, for-profit institutions in 1995–96, 17 percent had none of these risk factors, 33 percent had one, 30 percent had two, 17 percent had three, and 3 percent had all four risk factors (figure C). These students were more likely to have had a greater number of loan default risk factors than borrowers at other less-than-4-year institutions. Fifty percent of borrowers at less-than-4-year, for-profit institutions had two or more default risk factors, compared to 35 percent of borrowers at other less-than-4-year institutions. The percentages of students with no risk factors were 17 percent and 30 percent, respectively.

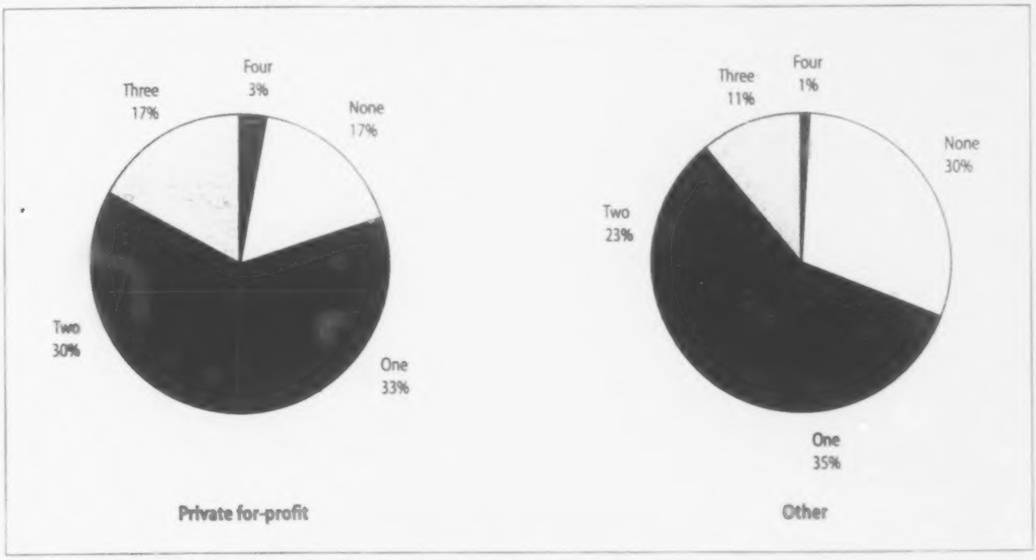
There were no significant differences between 1992–93 and 1995–96 in the number of loan default risk factors for either students at less-than-4-year, for-profit institutions or their counterparts at other institutions.

4-Year, For-Profit Institutions

Over the past several years, the prominence of 4-year, for-profit postsecondary institutions that offer programs leading to a baccalaureate degree and beyond has increased.

In 1995–96, undergraduate students at 4-year, for-profit institutions were different than those students at less-than-4-year, for-profit institutions. They were less likely to be female (43 percent compared to 67 percent), have not

Figure C.—Percentage distribution of undergraduate borrowers enrolled in less-than-4-year institutions according to number of loan default risk factors, by control of institution: 1995–96



NOTE: Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:1996), Data Analysis System.

worked while enrolled (15 percent compared to 39 percent), and have delayed their enrollment for a year or more after high school (53 percent compared to 69 percent).

Differences also were evident with regard to financing behavior. The average amounts of federal loans and grants received by students at 4-year, for-profit institutions were higher than those for students at less-than-4-year, for-profit institutions. They also were more likely to receive employer aid. However, their average state grant was likely to be lower.

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For additional details on survey methodology, see

Loft, J.D., Riccobono, J.A., Whitmore, R.W., Fitzgerald, R.A., and Berkner, L.K. (1995). *Methodology Report for the National Postsecondary Student Aid Study: 1992–93* (NCES 95–211).

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Progress Through the Teacher Pipeline: 1992–93 College Graduates and Elementary/Secondary School Teaching as of 1997

Robin R. Henke, Xianglei Chen, Sonya Geis, and Paula Knepper

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997).

As the school-age population in the United States grows and teachers from the baby-boom generation begin to retire, school administrators and policymakers anticipate an increasing shortage of elementary and secondary school teachers. Although some reports indicate that in the late 1990s relatively more college students have been interested in teaching than were in the early 1980s (Feistritzer 1999; Tabor 1999), increasing anecdotal evidence also suggests that schools and districts are finding it difficult to locate teachers to staff their classrooms (Colvin 1998; Mundy 1999; Schultze and Zahn 1998). In times of teacher shortage, administrators may not feel that they can wait to find well-qualified graduates.

First-time teachers are a large source of newly hired teachers for both public and private schools, accounting for 53 percent of new hires in public schools and 42 percent in private schools in 1990–91. In particular, one-third of new hires in public schools and one-fifth of new hires in private schools entered teaching straight out of college. Another 20 percent of both public and private school new hires were college graduates who had been doing other work between graduating from college and becoming teachers (Rollefson and Broughman 1995). Thus, new graduates are an important source of the teacher supply, and the rate at which they become teachers is important to those who staff U.S. classrooms.

Which new college graduates become teachers, however? Persistent discrepancies between the demographics of the teacher and student populations—with teachers considerably less likely than students to be of racial/ethnic minority backgrounds—concern some parents, educators, and policymakers. Currently, there is limited empirical evidence regarding the question of whether student achievement would improve if teacher demographics more closely resembled student demographics. However, some researchers have identified teachers who have been particularly effective with African-American children and have found that they tend "... to contextualize teaching, helping students build bridges linking their everyday experiences to new knowledge" (Darling-Hammond, Dilworth, and Bullmaster 1997). Another noted characteristic of these teachers is their tendency to use teaching practices that are consistent with African-American cultural norms (Ladson-Billings 1994). Such researchers argue that increasing the proportion of teachers who have direct knowledge of minority group cultural norms will enhance the achievement of minority children both through their teaching and by informing nonminority teachers' practice.

In addition to the issue of teacher race/ethnicity, policymakers and school administrators at all levels are concerned about the quality of teachers' subject matter knowledge and preparation in pedagogical techniques. Staffing classrooms with teachers who lack preparation in either subject matter or pedagogy may impede progress toward achieving national education goals for student achievement (American Council on Education [ACE] 1999; Murray 1997; National Commission on Teaching and America's Future [NCTAF] 1996, 1997). Researchers have found that teachers' verbal aptitude test scores are associated with their students' verbal achievement (Ehrenberg and Brewer 1995; Ferguson 1998; Ferguson and Ladd 1996) and that teachers' mathematics expertise is associated with their students' mathematics achievement (Monk 1994; Rowan et al. 1997).

However, research conducted in the 1980s and 1990s indicated that college graduates with higher standardized test scores were less likely than lower scoring graduates to teach and that higher scoring graduates who did teach were more likely than their lower scoring counterparts to leave teaching (Murnane et al. 1991; Schlecty and Vance 1983). Research into this issue has continued, with somewhat mixed results (Bruschi and Coley 1999; Gitomer, Latham, and Ziomek 1999). This report describes teachers' preparation in terms of their undergraduate grade-point averages overall and in their major field of study, whether they completed pedagogical training required for teacher certification, the degree to which they studied the academic fields they teach, and their college entrance examination test scores.

This report is the second in a series of reports that follows 1992–93 college graduates' progress through the teacher pipeline using data from the 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997). The first report, entitled *Out of the Lecture Hall and Into the Classroom: 1992–93 College Graduates and Elementary/Secondary School Teaching* (Henke, Geis, and Giambattista 1996), focused on graduates' forays into teaching as of 1 year after college graduation.

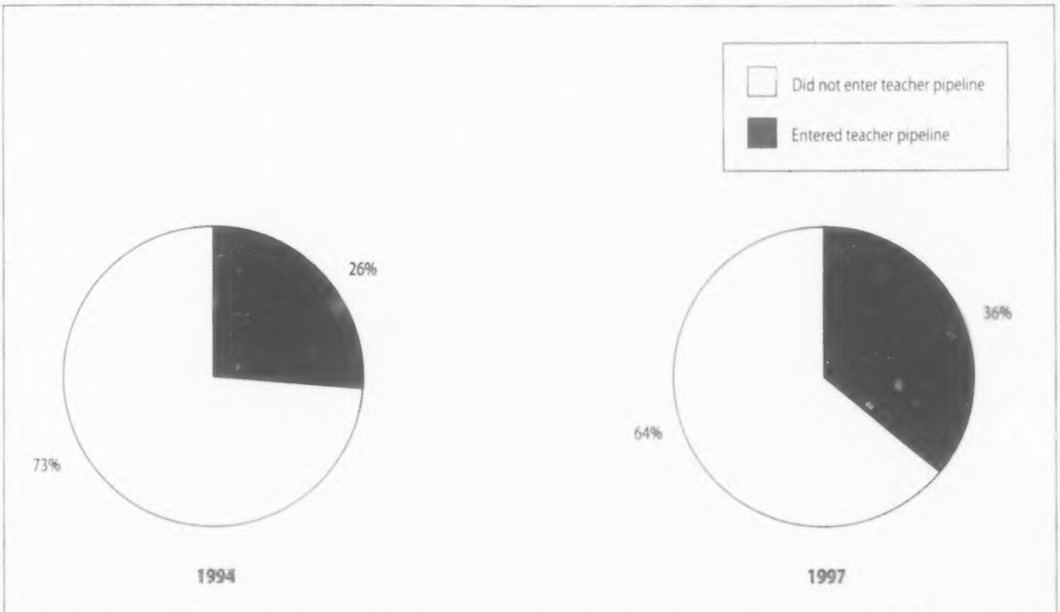
Like *Out of the Lecture Hall,* this second report focuses on the academic characteristics and preparation for teaching of those who took various steps toward teaching and is organized by a conceptual "teacher pipeline" that represents a teacher's career. The pipeline includes preparatory activities—considering teaching, student teaching as an undergraduate, becoming certified to teach, applying for teaching jobs—as well as teaching experiences and plans for teaching in the future. The report first examines the rate at which graduates with varying demographic and academic characteristics entered the teacher pipeline and continues by describing the steps that pipeline entrants took toward teaching and the experiences of those who taught. The final section discusses both the rate at which those who had taught since completing the 1992–93 degree had stopped teaching and all pipeline members' expectations for teaching in the future. Future reports will continue to follow this cohort into and out of teaching, studying how many graduates enter the pipeline after 1997, how long those who teach remain in the profession, and whether those who teach and leave return to the classroom later in their working lives.

Entering the Teacher Pipeline

For some 1992–93 college graduates, the 1992–93 degree was a second bachelor's degree. Among such graduates were those who had prepared to teach or had taught without preparing prior to receiving the 1992–93 degree. For the purposes of this analysis, the 3 percent of graduates who had taught before receiving the degree or had become certified 1 year or more before receiving the degree were excluded from the population of graduates under study. The remaining 97 percent of 1992–93 college graduates, who were eligible to enter the teacher pipeline, are referred to as "graduates" or "bachelor's degree recipients."

Graduates were identified as having entered the teacher pipeline when they reported that they had taught in an elementary or secondary school, had become certified to teach, had applied for a teaching position, or were considering teaching at the time of either the 1994 or the 1997 interview. In 1994, 1 year after completing the 1992–93 degree, one-quarter of 1992–93 bachelor's degree recipients had entered the teacher pipeline (figure A). By 1997, 4 years after completing the degree, more than one-third (36 percent) had done so. The proportion of graduates who had

Figure A.—Percentage distribution of pipeline-eligible 1992-93 bachelor's degree recipients according to whether they entered the teacher pipeline: 1994 and 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997), Data Analysis System.

taught also increased between 1994 and 1997: by 1994, 8 percent of graduates had taught, and by 1997, 13 percent had done so.

As has been true historically (Murnane et al. 1991), men were less inclined than women to enter the pipeline. In addition, Asian/Pacific Islander graduates were less inclined to do so than were graduates of other racial/ethnic backgrounds.

Graduates who had majored in education were highly likely to enter the pipeline, and the majority had taught: 84 percent of education majors had entered the pipeline, and 58 percent of education majors had taught by 1997. About one-fifth to nearly one-half of graduates who had majored in other fields as undergraduates had entered the pipeline.

Graduates whose college entrance examination (CEE) scores fell in the top quartile among 1992–93 college graduates were less likely than those in the bottom quartile to enter the teacher pipeline (32 percent versus 41 percent). In particular, whereas 3 percent of graduates in the top quartile had prepared to teach but not taught, 6 percent of graduates in the bottom quartile had done so. Similarly, 6 percent of graduates in the top quartile had prepared and taught, compared with 12 percent in the bottom quartile.[1] Graduates in the top quartile were about twice as likely as those in the bottom quartile to teach without having prepared, however.

In contrast to the relationships between CEE scores and teaching in this cohort, the pipeline entry rate was positively related to graduates' grade-point averages (GPAs), both cumulative and in their undergraduate majors. Whereas 40 percent of graduates with GPAs of 3.75 or higher, both cumulative and in their majors, entered the pipeline, 32 percent of graduates with GPAs lower than 2.75 did so. Furthermore, graduates with top GPAs were more likely than graduates with GPAs of less than 2.75 to have prepared to teach (whether or not they had taught). This is at least partly a function of differences in GPAs among graduates who had majored in different fields. Education majors, who were more inclined to prepare to teach and actually teach, also had higher undergraduate GPAs, both overall and in their majors, than those who had majored in business/management; mathematics, computer science, or the natural sciences; and the social sciences (Henke, Geis, and Giambattista 1996).

Working in Schools and Classrooms

By 1997, 1992–93 college graduates who first taught within 4 years of receiving their bachelor's degree could have taught in several schools, and they were asked about as many as six different schools. Between receiving their bachelor's degrees and the 1997 interview, most (83 percent) had worked only in public schools, far fewer (13 percent) only in private schools, and a small percentage (4 percent) in both public and private schools. Graduates with CEE scores in the top quartile were more likely than those with scores in the bottom quartile to have taught only in private schools (26 percent vs. 10 percent).

Previous research indicates that graduates with higher CEE scores were more likely to have taught only at the secondary level (Gitomer, Latham, and Ziomek 1999), and B&B:1993/1997 data are consistent with those findings. Graduates in the top quartile of scores were more likely than their peers in the bottom quartile to have taught only at the secondary level and less likely to have taught only at the elementary level (figure B). However, grades in college, both overall and within graduates' major fields of study, were not associated with the level at which graduates taught.

Some policy analysts (NCTAF 1996, 1997) have noted that new teachers are more likely than experienced teachers to teach in schools that serve disadvantaged students, and the B&B:1993/1997 data are somewhat consistent with this claim. As of 1993–94, one-fifth of the nation's teachers worked in high-minority-enrollment schools—that is, schools where at least one-half of the enrolled students were of minority backgrounds (Henke et al. 1997). In contrast, the B&B:1993/1997 data indicate that between 1992 and 1997, about one-third of new teachers worked in high-minority-enrollment schools during their most recent semester of teaching. However, although 40 percent of schools serve large concentrations of children who receive free or reduced-price lunch, the B&B:1993/1997 data indicate that 26 percent of 1992–93 graduates taught in schools where at least one-half of the students do so.

Graduates in the top quartile of the CEE score distribution were about one-third as likely as graduates in the bottom quartile to teach mainly general elementary classes. On the other hand, compared with those in the bottom quartile,

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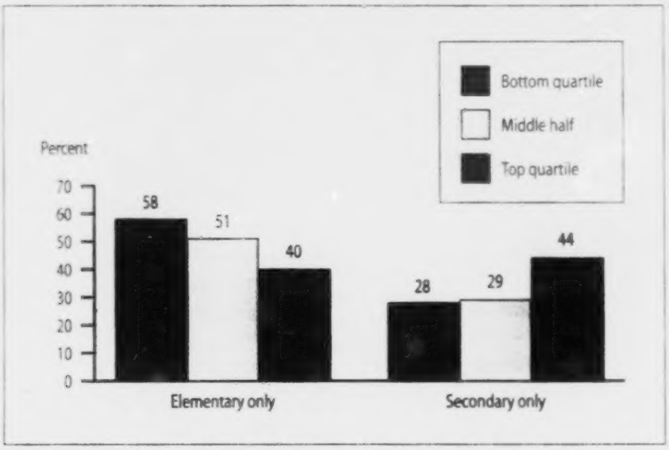
[1] For the purposes of this report, graduates were defined as having prepared to teach if their undergraduate transcripts indicated they had completed a student-teaching assignment or if they reported having earned a teaching certificate at the probationary level or higher. This definition does not include majoring in education, nor does it indicate any relationship between the graduate's field of undergraduate or graduate study and the fields in which he or she taught.

Figure B.—Percentage of 1992–93 bachelor's degree recipients who had taught only at the elementary or secondary levels since graduation, by college entrance examination (CEE) score quartile*: 1997



*Includes SAT quartile among B&B:1993 graduates for those who had SAT scores. If no SAT score was available, the ACT quartile among B&B:1993 graduates was used.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997), Data Analysis System.

top-quartile graduates were nearly twice as likely to teach science or mathematics and about four times as likely to teach English.

Among 1992–93 bachelor's degree recipients who were teaching full time in their most recent spring semester of teaching, those who taught general elementary classes were responsible for an average of 33 children. About 12 percent of these new full-time general elementary teachers believed their workloads were more difficult than those of other teachers in their schools. Full-time general elementary teachers who had left teaching by April 1997 were not, on average, responsible for more students in their most recent semester of teaching than those who were still teaching. Moreover, as compared with their colleagues who were still teaching in April 1997, those who left were no more likely to report that their workloads were more difficult than those of other teachers in their schools.

Among 1992–93 bachelor's degree recipients, those who taught single subjects full time in their most recent semester of teaching taught an average of six periods per day in a total of two subject areas. Those who worked in secondary schools were responsible for an average of 116 students, whereas those who taught in elementary schools were responsible for an average of 91 students. Those who left teaching were responsible for no more students than those who remained in the classroom.

In general, single-subject teachers (for example, secondary English, mathematics, or music teachers) were more likely than general elementary teachers to report that their workloads were more difficult than those of other teachers in their school. However, single-subject teachers who left teaching were no more likely than single-subject teachers who were still teaching in April 1997 to report that they had more difficult workloads.

Graduates who taught earned among the lowest annual salaries of their college cohort.[2] Average annual salaries ranged from about $25,500 for teachers, clerical staff, and personal and service workers to about $41,000 for lawyers and licensed medical professionals (figure C). Graduates in all job categories but clerical staff, personal and service workers, and social work areas had higher average annual salaries than did those who worked as K–12 teachers.

Nearly three-quarters of teachers among 1992–93 bachelor's degree recipients would choose to teach if they could go back to their college days and start over again. Undergraduate academic achievement was somewhat associated with graduates' willingness to teach again. Whereas about three-quarters of teachers who had scored in the bottom three quartiles of the CEE score distribution would choose

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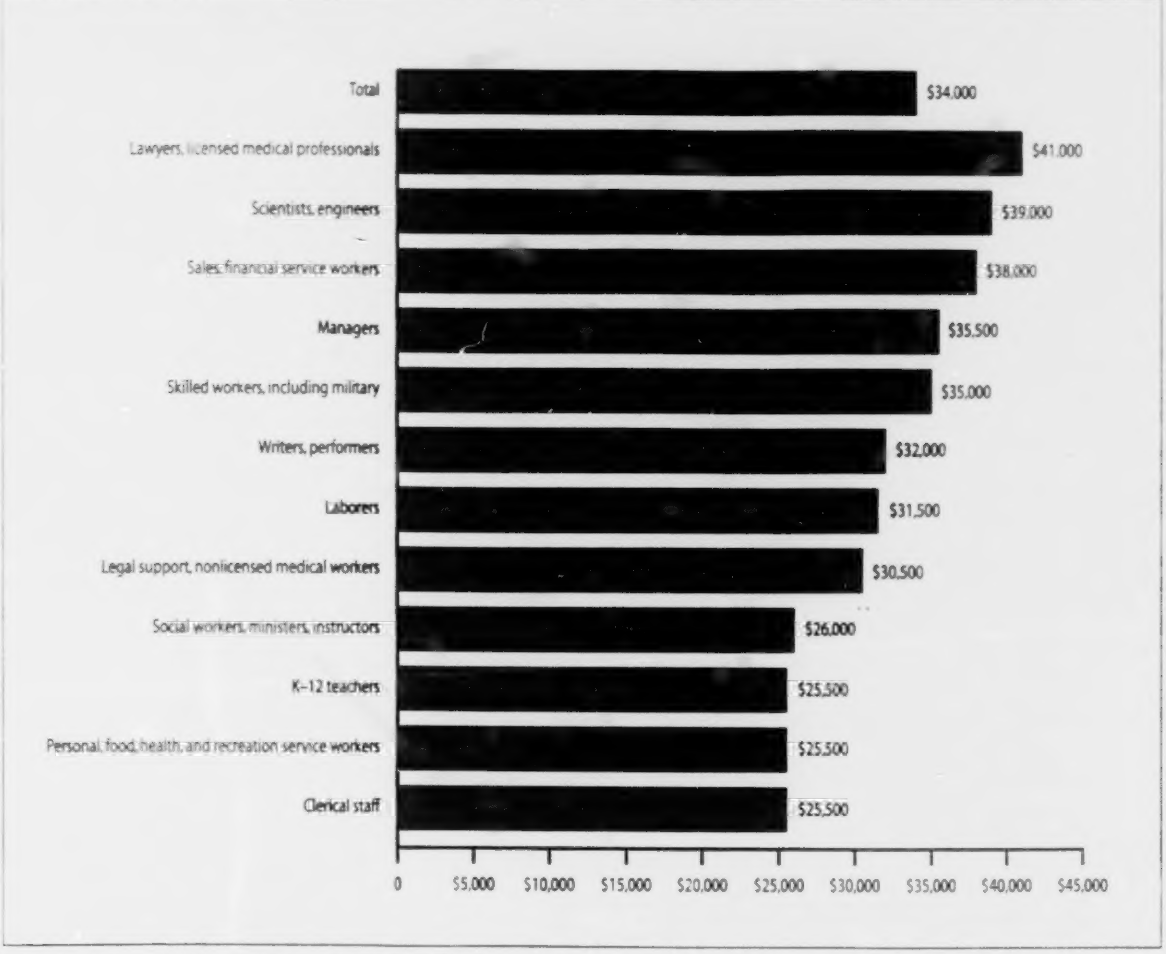
[2] Salaries are reported on an annual basis and do not account for the number of weeks or months worked in a year. Teachers often work on 9- or 10-month contracts, and therefore their annual salaries may be lower due to fewer weeks worked as well as lower rates of pay.

Figure C.—Average annual salary* of 1992–93 bachelor's degree recipients who were employed full time in April 1997, by occupation



*Salary data do not take into account number of weeks or months worked per year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997), Data Analysis System.

teaching again, about two-fifths of their colleagues in the top quartile would do so. However, graduates' GPAs, both overall and in their majors, were not associated with their willingness to teach again.

The degree to which teachers had received training in pedagogy was associated with their willingness to teach again. For example, whereas 45 percent of those who had no record of completing a student-teaching assignment and were not certified reported that they would choose teaching again, 80 percent of those certified to teach reported that they would teach again.

Leaving or Stopping Out

One in five 1992–93 bachelor's degree recipients who started teaching after college had left teaching as of April 1997.[3] Future analyses will determine whether these teachers were stopping out and will return to the classroom later in their working lives. Neither gender nor race/ethnicity was associated with whether new teachers had left teaching without returning. However, graduates with CEE scores in the top quartile were twice as likely as those with scores in the bottom quartile to have left without returning (32 percent vs. 16 percent) (figure D).

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[3] In this analysis, "leaving" meant not teaching for more than 3 months. This section of the report discusses leaving teaching without returning, defined as leaving no later than January 1997 and not returning by April 1997. This definition was developed to exclude from "leavers" two categories of teachers: (1) those who left at some point but returned to the classroom by April 1997 and (2) those who left within 3 months of the beginning of the 1997 data collection and whose potential return within the allotted 3 months would not have been measured.

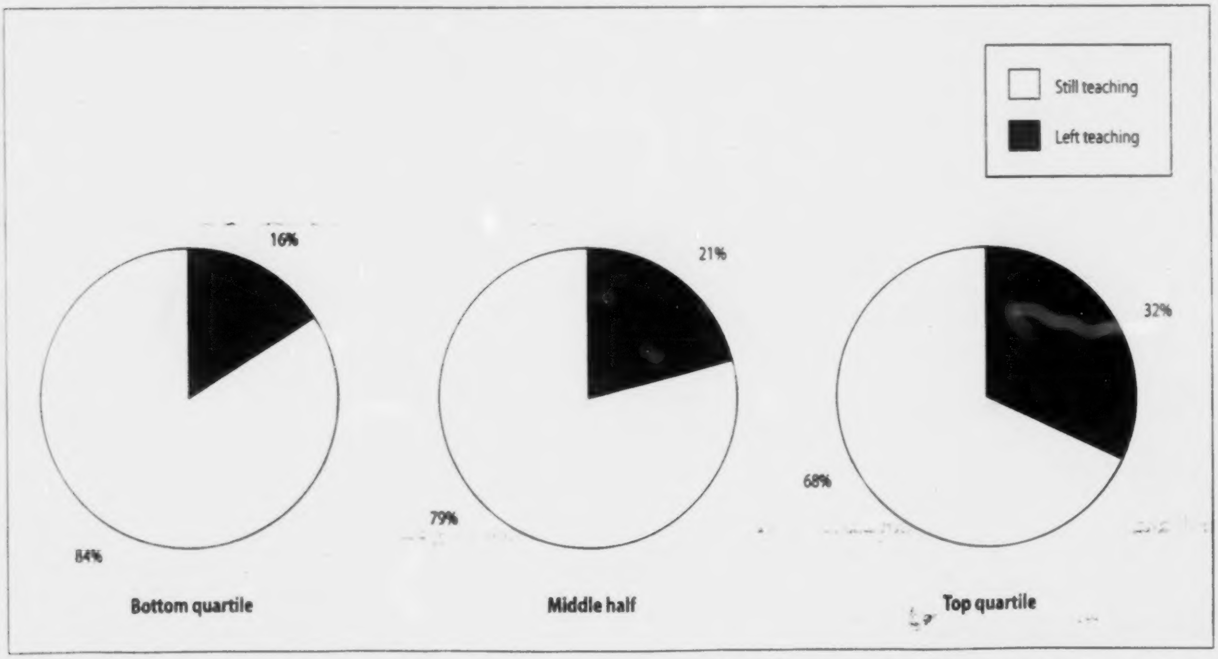
In general, in contrast to new teachers who had less training in pedagogy, those with more training were less likely to have left by April 1997. For example, 15 percent of those who had student taught had left as of April 1997, compared with 29 percent of those who had not student taught. Similarly, whereas 14 percent of certified teachers had left as of April 1997, 49 percent of those without certification had done so.

Plans Regarding Teaching in the Future

In 1997, all graduates were asked whether they planned to be working full time in 3 years and, if so, what they expected to be doing. Graduates were also asked what work they expected they would do in the longer term. Overall, about 8 percent of graduates expected to be teaching full time in 3 years, and 7 percent expected to be teaching in the longer term. Gender and race/ethnicity were related to graduates' plans for teaching in the future. Whereas 10 percent of women expected to teach full time in 3 years and to teach in the longer term, about 4 percent of men did so. Asian/Pacific Islander graduates were less likely than Hispanic and white, non-Hispanic graduates to expect to teach full time in 3 years or in the longer term. In addition, black, non-Hispanic graduates were about one-half as likely as white, non-Hispanic graduates to expect to teach in the longer term.

As with their entrance into teaching, graduates with higher CEE scores were less likely than graduates with lower scores to expect to teach in the future. For example, whereas 4 percent of top-quartile graduates expected to

Figure D.—Of 1992-93 bachelor's degree recipients who first taught after receiving the bachelor's degree, percentage distribution according to teaching status in April 1997, by college entrance examination (CEE) score quartile



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997), Data Analysis System.

teach full time in 3 years, 10 percent of those in the bottom quartile did so. Graduates with the lowest GPAs (less than 2.75) were less likely than graduates with GPAs of 2.75 or higher to expect to teach in the future.

Preparation to teach was associated with differences in graduates' expectations for teaching in the future. Fifty-six percent of certified teachers expected to be teaching full time in 3 years, and 44 percent expected to be teaching in the longer term.

Summary

Although 13 percent of 1992–93 college graduates had taught by 1997, 8 percent expected to teach full time in 3 years and 7 percent expected to teach in the longer term. Thus, it appears that many graduates who teach soon after college do not expect to spend much time teaching, let alone make it a career. Whether this is also true in other white-collar professions has not yet been studied empirically, however, and remains an important question for future research. If, indeed, new college graduates often change careers regardless of the occupations in which they begin their postbaccalaureate working lives, educators and policymakers who want to improve teacher retention rates may need to address undergraduate career development more generally in addition to teachers' professional preparation, working conditions, and support.

White, non-Hispanic graduates continue to be more inclined than minority graduates to teach. Asian/Pacific Islander graduates were generally less inclined than graduates of other racial/ethnic backgrounds to teach. Black, non-Hispanic graduates were less inclined than Hispanic or white, non-Hispanic graduates to expect to teach in the longer term. Thus, this cohort's plans for the future do not suggest that the proportion of minority teachers will more closely resemble the proportion of minority students in the future.

Graduates' commitment to teach, whether measured in terms of pedagogical training and certification or expectations for teaching in the future, was associated with their CEE scores and with their undergraduate GPAs, although in opposite directions. Graduates with higher scores were less inclined to teach, while graduates with higher GPAs were more inclined to teach. As has traditionally been true, however, men were less inclined than women to teach, and although men were more likely than women to score in the top quartile of college entrance examination scores, they were less likely to have cumulative GPAs of 3.5 or higher (McCormick, Horn, and Knepper 1996). Therefore, gender differences in teaching may at least partly explain the divergent CEE and GPA findings.

Consistent with such a hypothesis, secondary-level teachers, who are more likely than elementary-level teachers to be men, were also more likely than elementary-level teachers to have scored in the top quartile of the CEE score distribution and were as likely as all graduates to have scored in the top quartile. Secondary teachers were less likely than elementary teachers to have top GPAs, overall and in their majors.

Thus, patterns in teaching behavior among 1992–93 college graduates have continued from their first year out of college through their fourth. Whether these patterns will continue as states and localities both meet the needs of a growing school-age population and attempt to improve the quality of their teaching forces is a question for future research as the B&B:1993 study continues into the next century.

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Data source: The NCES 1993 Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997).

For technical information, see the complete report:

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Fall Enrollment in Postsecondary Institutions: 1997

Samuel Barbett

This article was originally published as the Executive Summary of the E.D. Tabs report of the same name. The universe data are from the Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF).

Introduction

This report presents detailed tabulations of student enrollment in postsecondary education institutions in the 50 states and the District of Columbia for fall 1997. It focuses primarily on degree-granting institutions that are eligible for Title IV federal financial aid, although summary data are also presented for non-degree-granting eligible institutions.[1] Data for this report are taken from the Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF) of the National Center for Education Statistics (NCES).

This is the second year that NCES has used Title IV eligibility and degree-granting status to operationally define a higher education institution. Prior to 1996, higher education institutions were defined as postsecondary institutions that were accredited at the college level by an agency recognized by the Secretary, U.S. Department of Education. This change from reporting on higher education institutions as defined by accreditation status to reporting on them as defined by Title IV eligibility and degree-granting status was necessary because the Department of Education no longer distinguishes among institutions based upon accreditation status. Thus, it is no longer possible for NCES to obtain updated lists of "higher education" institutions as defined in previous reports. In lieu of this designation, NCES has identified subsets of postsecondary institutions on the basis of whether or not they are eligible to participate in Title IV federal financial aid programs because Title IV eligibility has implications for reporting and is of particular policy interest.[2] Institutions are further subdivided by whether or not they grant degrees, information that is available directly from IPEDS data.[3]

Characteristics of Enrolled Students

In the fall of 1997, 14.9 million students were enrolled in the 6,252 postsecondary institutions that were eligible to participate in Title IV federal financial aid programs (table A). Of these, 97.3 percent were enrolled in institutions that awarded at least an associate's degree. Over three-fourths of all students were enrolled in public institutions, of which 98.5 percent attended degree-granting institutions and 1.5 percent were enrolled in non-degree-granting institutions.

About 21 percent of students in eligible degree-granting institutions were enrolled in private non-profit schools, and about 2 percent were in private for-profit schools. Of those students enrolled in non-degree-granting institutions, 48 percent were enrolled in private for-profit institutions.

About 3 percent of students enrolled in eligible postsecondary institutions were nonresident aliens (individuals who are in the United States on temporary visas). Of the citizens and resident aliens enrolled in eligible postsecondary institutions, 72.8 percent were white; 11.3 percent were black, non-Hispanic; 8.8 percent were Hispanic; 6.1 percent were Asian/Pacific Islander; and 1.0 percent were American Indian/Alaska Native. As shown by the racial/ethnic distribution of U.S. citizens and resident aliens in table B, minority[4] students represented a higher proportion of the enrollment at non-degree-granting postsecondary institutions than at degree-granting institutions.

The distribution of students by racial/ethnic background varied considerably by level, participation status, and type of institution. For example, blacks, Hispanics, and American Indians/Alaska Natives comprised a higher percentage of undergraduate enrollment than graduate or first-professional enrollments. Further, a higher percentage of blacks and whites were enrolled as first-time, first-year students than at the total undergraduate level.

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[1] In the remainder of the report, institutions that are eligible for Title IV federal financial aid will be designated simply as "eligible."

[2] Title IV eligibility is based on lists of eligible institutions maintained by the Department of Education's Office of Postsecondary Education (OPE).

[3] In 1995, the Title IV eligible, degree-granting universe included approximately 5 percent more institutions than were included in the universe of institutions that were accredited at the college level. Most of the institutions that were added to the new reporting universe were private for-profit institutions with relatively small student enrollments. Therefore, it is estimated that the total enrollment of the Title IV eligible, degree-granting universe is approximately 0.1 percent larger that that of the former "accredited" universe. More information on how this change in universe definition has affected fall enrollment counts may be found in Barbett (1998).

[4] Nonresident aliens are not included as minority enrollment, but are categorized separately.

Table A.—Total enrollment in Title IV eligible postsecondary institutions, by degree-granting status, control, and level of institution: 50 states and the District of Columbia, fall 1997

Control and level of institution	All institutions		Degree-granting		Non-degree-granting	
	Number	Percent	Number	Percent	Number	Percent
All institutions	14,900,416	100.0	14,502,334	100.0	398,082	100.0
Public	11,370,755	76.3	11,196,119	77.2	174,636	43.9
Private non-profit	3,012,106	20.2	2,977,614	20.5	34,492	8.7
Private for-profit	517,555	3.5	328,601	2.3	188,954	47.5
4-year	8,898,653	59.7	8,896,765	61.3	1,888	0.5
2-year	5,751,851	38.6	5,605,569	38.7	146,282	36.7
Less-than-2-year	249,912	1.7	(†)	(†)	249,912	62.8

†Not applicable; all less-than-2-year-institutions are non-degree-granting.

NOTE: Because of rounding, percentages may not add to 100.0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:1997).

Table B.—Total enrollment in Title IV eligible postsecondary institutions, by degree-granting status of institution and residency status and race/ethnicity of student: 50 states and the District of Columbia, fall 1997

Residency status and race/ethnicity of student	All institutions		Degree-granting		Non-degree-granting	
	Number	Percent	Number	Percent	Number	Percent
All students	14,900,416	100.0	14,502,334	100.0	398,082	100.0
U.S. citizens and resident aliens	14,432,570	96.9	14,037,332	96.8	395,238	99.3
Nonresident aliens	467,846	3.1	465,002	3.2	2,844	0.7
U.S. citizens and resident aliens	14,432,570	100.0	14,037,332	100.0	395,238	100.0
White, non-Hispanic	10,504,757	72.8	10,266,122	73.1	238,635	60.4
Total minority	3,927,813	27.2	3,771,210	26.9	156,603	39.6
Black, non-Hispanic	1,630,291	11.3	1,551,044	11.0	79,247	20.1
Hispanic	1,275,601	8.8	1,218,493	8.7	57,108	14.4
Asian/Pacific Islander	875,051	6.1	859,206	6.1	15,845	4.0
American Indian/ Alaska Native	146,870	1.0	142,467	1.0	4,403	1.1

NOTE: Because of rounding, percentages may not add to 100.0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:1997).

Asians/Pacific Islanders, on the other hand, comprised 11.0 percent of all first-professional students, but only 6.0 percent of undergraduate and 4.7 percent of graduate students.

In 1997, a larger percentage of all students in degree-granting institutions (55.9 percent) were women. Similarly, the majority of undergraduate (56.1 percent) and graduate (56.8 percent) students were women (table C). However, women made up only 43.1 percent of first-professional students. Within each of the racial/ethnic groups, women composed the majority of all undergraduates as well as first-time, first-year undergraduates. Similarly, at the postbaccalaureate level, women made up over half of the graduate students in each racial/ethnic category, although Asian women were a bare majority, comprising 50.7 percent of all Asian graduate students. It is also notable that more than two-thirds of all black graduate students were women. However, at the first-professional level, the picture is quite different for all racial/ethnic groups except blacks. While women accounted for just 41.4 percent of white first-professional

Table C.—Percentage distribution of racial/ethnic enrollment in Title IV eligible degree-granting institutions, by sex and student level: 50 states and the District of Columbia, fall 1997

Sex and student level	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/Alaska Native	Nonresident alien
Total men	44.1	44.3	37.4	43.2	48.6	41.4	57.0
Undergraduate	43.9	44.4	37.7	43.2	48.3	41.4	52.7
First-time, first-year	46.2	46.7	41.9	45.4	49.0	44.5	53.7
Other undergraduates	43.4	43.9	36.8	42.8	48.2	40.6	52.6
First-professional	56.9	58.6	43.1	55.1	53.5	53.8	65.2
Graduate	43.2	41.2	32.5	40.0	49.3	39.4	62.7
Total women	55.9	55.7	62.6	56.8	51.4	58.6	43.0
Undergraduate	56.1	55.6	62.3	56.8	51.7	58.6	47.3
First-time, first-year	53.8	53.3	58.1	54.6	51.0	55.5	46.3
Other undergraduates	56.6	56.1	63.2	57.2	51.8	59.4	47.4
First-professional	43.1	41.4	56.9	44.9	46.5	46.2	34.8
Graduate	56.8	58.8	67.5	60.0	50.7	60.6	37.3

NOTE: Because of rounding, percentages may not add to 100.0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:1997).

students, 46.5 percent of Asian students, 44.9 percent of Hispanic students, and 46.2 percent of American Indians, they accounted for 56.9 percent of black first-professional students.

Most students (58.2 percent) were enrolled on a full-time basis (table D). Hispanic students, however, were more likely to enroll part time than whites or other minorities: about half (49.6 percent) of all Hispanic students attended school part time. However, at the first-professional and graduate levels, Hispanic students were more likely to enroll on a full-time basis than black or white students. Asian/Pacific Islander students were more likely than students of any other racial/ethnic group to attend full time at both the undergraduate (61.0 percent) and graduate levels (51.0 percent).

Hispanics and American Indians/Alaska Natives were a smaller percentage of 4-year college enrollment and a larger percentage of 2-year college enrollment than might be expected from the overall distribution of enrolled students by race/ethnicity. Additionally, blacks and Hispanics made up almost 30 percent of the total enrollment in for-profit, eligible, degree-granting institutions compared with about 15 percent of the enrollment in private non-profit institutions and 20 percent of the enrollment in public institutions. Although non-degree-granting institutions enrolled only 2.7 percent of all students attending eligible postsecondary institutions, they enrolled a higher percentage of black (4.9 percent) and Hispanic (4.5 percent) students.

Data on median age (table E) show that in addition to undergraduates being youngest overall, first-professional students are younger than graduate students. Indeed, in fall 1997, 64 percent of undergraduates were under 25, with a median age of 21.8. In comparison, 37.3 percent of first-professional students were under 25 (with a median age of 26.2), and 15.3 percent of graduate students were under 25 (with a median age of 30.6).

Among undergraduate students, full-time students were significantly younger than part-time students. About 82 percent of full-time undergraduates were under 25 compared with 38 percent of part-time undergraduates, and there was a differential in median age of almost 8 years between full-time and part-time undergraduates. The median age of a full-time undergraduate in 1997 was 20.4 while the median age of a part-time undergraduate was 28.0.

Women undergraduates, overall, were slightly older than men undergraduates, by about half a year, on average. The greatest difference in age between men and women undergraduates was evidenced among part-time students, with women being approximately 2 years older than their male counterparts. Interestingly, women first-professional students were slightly younger (median age 25.6), on

Table D.—Percentage distribution of racial/ethnic enrollment in Title IV eligible degree-granting institutions, by attendance status and student level: 50 states and the District of Columbia, fall 1997

Attendance status and student level	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/Alaska Native	Nonresident alien
Full-time	58.2	58.1	57.8	50.4	61.3	57.2	77.2
Undergraduate	59.6	60.2	59.1	50.5	61.0	57.4	78.3
First-time, first-year	78.1	79.0	76.7	70.0	79.3	73.1	87.2
Other undergraduates	55.6	56.0	55.0	46.7	57.4	53.9	76.7
First-professional	89.6	89.2	84.8	90.4	94.5	91.1	92.2
Graduate	42.9	38.0	39.3	41.4	51.0	46.4	75.2
Part-time	41.8	41.9	42.2	49.6	38.7	42.8	22.8
Undergraduate	40.4	39.8	40.9	49.5	39.0	42.6	21.7
First-time, first-year	21.9	21.0	23.3	30.0	20.7	26.9	12.8
Other undergraduates	44.4	44.0	45.0	53.3	42.6	46.1	23.3
First-professional	10.4	10.8	15.2	9.6	5.5	8.9	7.8
Graduate	57.1	62.0	60.7	58.6	49.0	53.6	24.8

NOTE: Because of rounding, percentages may not add to 100.0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:1997).

Table E.—Median age of enrolled students and the percent of enrolled students who are under 25 in Title IV eligible degree-granting institutions, by student level, attendance status, and sex: 50 states and the District of Columbia, fall 1997

	Undergraduate		First-professional		Graduate	
Attendance status and sex	Median	Percent under 25	Median	Percent under 25	Median	Percent under 25
All students	21.8	64.0	26.2	37.3	30.6	15.3
Men	21.6	67.1	26.5	33.9	30.2	14.2
Women	22.0	61.6	25.6	41.9	30.9	16.2
Full-time	20.4	81.8	25.7	40.6	28.0	24.9
Men	20.5	83.1	26.1	37.0	28.1	21.9
Women	20.4	80.7	25.2	45.3	27.8	27.6
Part-time	28.0	37.9	31.9	9.4	33.6	8.1
Men	26.8	41.3	32.0	8.2	32.9	7.2
Women	29.0	35.4	31.7	11.2	34.2	8.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:1997).

average, than their male counterparts (median age 26.5), while women graduate students were slightly older (median age 30.9) than men graduate students (median age 30.2).

Fall 1997 enrollment data tend to confirm the notion that 2-year institutions serve an older population than 4-year schools. The median age of 4-year undergraduates in 1997 was 21, while the median age of 2-year college students was 24.

Changes in Enrollment Between 1996 and 1997

Between 1996 and 1997, enrollment in higher education institutions increased by 0.9 percent. This change was driven almost entirely by an increase in the number of full-time students. When broken down by race and ethnicity, the increase was largely due to a change in minority enrollments. There was no measurable change in the number of white students or the number of part-time students, and the number of nonresident aliens decreased by less than .3 percent. The numbers of both men and women increased, but women had a higher percentage increase than men (a 1.1 percent increase vs. a .7 percent increase).

This general pattern of change was somewhat different in each institutional sector. Enrollments increased in 4-year public institutions by .5 percent, although there were decreases in the numbers of whites, males, and part-time students and increases in the numbers of all other students. In 4-year private institutions, enrollments of all types of students increased, although the percentage increase in 4-year private for-profit institutions was substantially higher than in private non-profit institutions. The overall increase in enrollment in 4-year private non-profit institutions was 1.3 percent while the overall increase in 4-year private for-profit institutions was 18.7 percent.

Overall, there was also an increase in the numbers of students attending 2-year institutions due totally to increases at public 2-year institutions. In private non-profit and private for-profit 2-year institutions, total enrollment declined between 1996 and 1997. The numbers of white students and nonresident aliens declined overall, while the numbers of all other students increased. In private non-profit institutions, smaller numbers of whites, blacks, Hispanics, American Indians, and nonresident aliens resulted in an overall 4.8 percent decrease in the number of students enrolled. In private for-profit institutions, decreases in the numbers of whites, Asians or Pacific Islanders, and American Indians/Alaska Natives were largely offset by increases in the numbers of blacks and Hispanics, and a 50 percent increase in nonresident alien enrollment.

The increase in enrollment between 1996 and 1997 occurred at undergraduate and graduate student levels although at different rates. Undergraduate enrollment increased by 1.0 percent and graduate enrollment increased by .6 percent, while enrollment in first-professional schools did not change. Among undergraduates, there were increased numbers of men and women, full- and part-time students, and U.S. citizens and resident aliens (all races), although there were substantial differences in the rates of increases. Only the number of nonresident aliens decreased.

The overall static level of enrollment in first-professional schools does not reflect the detailed changes. The number of whites, blacks, and Hispanics decreased while the number of Asians/Pacific Islanders and American Indians/Alaska Natives increased. The number of women enrolled at the first-professional level increased by 2.4 percent while the number of men decreased by 1.8 percent. Additionally, while first-professional enrollments in public institutions went up, they went down in both private non-profit and private for-profit institutions.

At the graduate level, minorities, nonresident aliens, and women increased their share of graduate enrollment between 1996 and 1997. Even so, minorities comprised only 17 percent of the graduate student enrollment compared to their 27 percent share of undergraduate enrollment.

Enrollments by State

The distribution of minority enrollment by state largely reflects the distribution of minority residents within each state. To illustrate, in 1997, states differed greatly in the distribution of minority and white students. For example, in California less than half of the students enrolled in colleges and universities were white, while blacks, who represent 10.7 percent of enrollments nationally, composed only 7.8 percent of California's enrollment. By comparison, Hispanics made up 20.7 percent of California's enrollment, and Asians or Pacific Islanders, 17.8 percent. Conversely, in Alabama, the District of Columbia, Georgia, Louisiana, Maryland, Mississippi, and South Carolina, blacks' share of enrollment ranged from 22.6 to 31.0 percent, which was more than double their national enrollment share. In New Mexico and Texas, Hispanics composed 33.6 and 21.7 percent of total enrollment, respectively, compared with their 8.4 percent share of enrollment in the nation as a whole. In Hawaii, Asians/Pacific Islanders composed 60.7 percent of total enrollment, while in Alaska, Arizona, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota, American Indians/Alaska Natives had a significant share of total enrollment (4.0 percent to 11.2 percent) compared with 1.0 percent nationally.

While there was very little change in enrollment between 1996 and 1997 (.9 percent increase), 16 states and the District of Columbia experienced decreases in enrollment. Nebraska had the largest percentage decrease (7.6 percent), while Minnesota and North Dakota experienced declines in enrollment of over 5 percent. Washington State posted the largest percentage increase in enrollment (3.9 percent), followed by Utah (3.7 percent), Mississippi (3.6 percent), Arkansas (3.4 percent), Nevada (3.3 percent), Missouri (3.2 percent), and California (3.1 percent).

The District of Columbia and five of the states that had a decline in total enrollment between 1996 and 1997 also had a decrease in the number of minority students enrolled in institutions in their states, and one state with an overall increase had a decrease in minority enrollment (Iowa). In most states, however, the percentage increase in minority enrollment was much greater than the percentage increase in total enrollment. For example, Arkansas had a 3.4 percent increase in total enrollment and a 9.4 percent increase in minority enrollment.

Reference

Barbett, S. (1998). *Fall Enrollment in Postsecondary Institutions: 1996* (NCES 1999–239). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data source: The 1996 and 1997 NCES Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF:1996 and 1997).

For technical information, see the complete report:

Barbett, S. (1999). *Fall Enrollment in Postsecondary Institutions: 1997* (NCES 2000–160).

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To obtain the complete report (NCES 2000–160), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Degrees and Other Awards Conferred by Title IV Eligible, Degree-Granting Institutions: 1996–97

Frank B. Morgan

This article was originally published as the Executive Summary of the E.D. Tabs report of the same name. The universe data are from the NCES Integrated Postsecondary Education Data System "Completions Survey" (IPEDS-C) and "Consolidated Survey" (IPEDS-CN).

Introduction

This report presents data on postsecondary degrees conferred during the 1996–97 academic year (July 1, 1996, to June 30, 1997) that were collected through the Integrated Postsecondary Education Data System (IPEDS).[1] IPEDS collects, among other data, the number of degrees and awards conferred in each field of study by award level (ranging from postsecondary certificates requiring less than 1 year of study to doctor's and first-professional degrees and certificates) and by race/ethnicity and gender of recipient.

Discipline divisions and their specialties (fields of study) are specified in the Classification of Instructional Programs (CIP), which was developed by the National Center for Education Statistics (NCES) and is the federally accepted standard for collecting, reporting, and interpreting education program data. This report uses the 1990 version of CIP (Morgan, Hunt, and Carpenter 1991) for classifying degree fields.

Title IV of the Higher Education Act of 1965 (amended) establishes federal financial aid programs (e.g., Pell Grants, Stafford Loans) for students attending postsecondary institutions. This report focuses on those institutions that (1) have been certified eligible to participate in these Title IV programs, (2) grant associate's or higher degrees, and (3) are within the 50 states and the District of Columbia.[2]

Highlights

In the 1996–97 academic year, nearly 2.3 million degrees were awarded by America's Title IV eligible, degree-granting institutions. Of the total number of degrees awarded, 25.0 percent were associate's degrees, 51.3 percent were bachelor's degrees, 18.3 percent were master's degrees, 2.0 percent were doctor's degrees, and 3.4 percent were first-professional degrees (table A).

Public institutions awarded the majority of degrees at all degree levels, except for first-professional degrees. Public institutions awarded 81.5 percent of associate's degrees, about two-thirds of bachelor's and doctor's degrees, and 55.6 percent of master's degrees. However, public institutions awarded only 39.7 percent of first-professional degrees (table B).

Sex and race/ethnicity of degree recipients

The proportion of degrees awarded to women increased slightly at all degree levels from 1995–96, with the majority of degrees in 1996–97 at the associate's, bachelor's, and master's degree levels being awarded to women. Degrees awarded to women at the doctoral degree level represented 40.8 percent and at the first-professional level 42.1 percent (table B).

Nearly three-quarters (73.1 percent) of all degrees awarded in 1996–97 were awarded to white students, 19.2 percent were awarded to minority students, and 7.7 percent were awarded to nonresident aliens or individuals whose race/ethnicity was unknown. These percentages, however, varied considerably by level of degree. For example, nonresident aliens received less than 10 percent of all associate's, bachelor's, and first-professional degrees, but received 11.8 percent of all master's degrees and 25.0 percent of all doctor's degrees (table B).

The proportion of degrees awarded to minority students was highest at the associate's level (22.4 percent) and dropped at each successive degree level through the doctor's degree; the minority shares at these levels were 19.4 percent of bachelor's degrees, 14.6 percent of master's degrees, and 12.1 percent of doctor's degrees. This drop was even more precipitous when blacks, Hispanics, and American Indians/Alaska Natives are examined separately from Asians/Pacific Islanders. Blacks, Hispanics, and American Indians received 18.1 percent of all associate's degrees in 1996–97, 13.7 percent of bachelor's degrees, 10.3 percent of master's degrees, and 6.6 percent of doctor's degrees. One-fifth (20.9 percent) of first-professional degrees were awarded to minorities (table B).

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[1] The "Completions Survey" was sent to all institutions that award associate's or higher level degrees or postbaccalaureate or higher certificates and that are eligible to participate in federal Title IV financial aid programs. Eligible postsecondary institutions that award only less-than-4-year certificates or diplomas reported completions as part of the IPEDS "Consolidated Survey." The "Completions" data file combines data from the two surveys so that a complete picture of the universe of eligible postsecondary education institutions in the 50 states, the District of Columbia, and the territories is possible.

[2] These 4,002 degree-granting, Title IV eligible institutions represent 61.1 percent of all postsecondary institutions within the 50 states and the District of Columbia on the 1996–97 "Completions" data file.

Table A.—Number and percentage distribution of degrees conferred by Title IV eligible, degree-granting institutions, by level of degree, control of institution, sex, and race/ethnicity of recipient: 50 states and the District of Columbia, 1996–97

	Associate's degrees		Bachelor's degrees		Master's degrees	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
All institutions	571,226	25.0	1,172,879	51.3	419,401	18.3
Control of institution						
Public	465,494	30.3	776,677	50.5	233,237	15.2
Private non-profit	49,168	7.3	384,086	56.7	181,104	26.7
Private for-profit	56,564	75.9	12,116	16.3	5,060	6.8
Sex of recipient						
Men	223,948	22.4	520,515	52.1	180,947	18.1
Women	347,278	26.9	652,364	50.6	238,454	18.5
Race/ethnicity of recipient						
White, non-Hispanic	419,994	25.1	878,460	52.5	288,552	17.2
Minority	128,060	29.2	227,216	51.8	61,217	14.0
Black, non-Hispanic	55,054	30.4	91,986	50.8	26,901	14.9
Hispanic	42,568	34.7	60,902	49.7	14,574	11.9
Asian/Pacific Islander	24,586	20.6	67,086	56.2	17,898	15.0
American Indian/Alaska Native	5,852	37.5	7,242	46.4	1,844	11.8
Race/ethnicity unknown	12,408	19.4	28,275	44.1	20,080	31.3
Nonresident alien	10,764	9.6	38,928	34.7	49,552	44.1

	Doctor's degrees		First-professional degrees		Total degrees	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
All institutions	45,876	2.0	78,730	3.4	2,288,112	100.0
Control of institution						
Public	29,838	1.9	31,243	2.0	1,536,489	100.0
Private non-profit	15,694	2.3	47,029	6.9	677,081	100.0
Private for-profit	344	0.5	458	0.6	74,542	100.0
Sex of recipient						
Men	27,146	2.7	45,564	4.6	998,120	100.0
Women	18,730	1.5	33,166	2.6	1,289,992	100.0
Race/ethnicity of recipient						
White, non-Hispanic	27,183	1.6	58,972	3.5	1,673,161	100.0
Minority	5,551	1.3	16,442	3.7	438,486	100.0
Black, non-Hispanic	1,786	1.0	5,184	2.9	180,911	100.0
Hispanic	1,068	0.9	3,529	2.9	122,641	100.0
Asian/Pacific Islander	2,528	2.1	7,226	6.1	119,324	100.0
American Indian/Alaska Native	169	1.1	503	3.2	15,610	100.0
Race/ethnicity unknown	1,689	2.6	1,670	2.6	64,122	100.0
Nonresident alien	11,453	10.2	1,646	1.5	112,343	100.0

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:1996–97) and "Consolidated Survey" (IPEDS-CN:FY1997).

Fields of study for associate's, bachelor's, master's, and doctor's degrees

In 1996–97, approximately 86 percent of all associate's degrees were awarded by 2-year institutions, with the remainder awarded by 4-year institutions. One-third of all associate's degrees at 2-year institutions were awarded in liberal/general studies and humanities, a field that generally permits transfers to 4-year institutions. Another one-third were awarded in two occupational programs, business management/administrative services (16.6 percent) and the health professions/related sciences (16.4 percent). In 4-year institutions, liberal/general studies and humanities comprised 19.7 percent of associate's degrees awarded, while the health professions/related sciences and business management/administrative services comprised 22.6 percent and 17.4 percent of associate's degrees, respectively. The percentages of associate's degrees in most fields in 2-year and 4-year institutions were fairly similar. However, at 4-year institutions, degrees in two fields (engineering-related technologies and health professions/related sciences) were

Table B.—Number and percentage distribution of degrees conferred by Title IV eligible, degree-granting institutions, by level of degree, control of institution, sex, and race/ethnicity of recipient: 50 states and the District of Columbia, 1995–96 and 1996–97

	Associate's degrees					Bachelor's degrees				
	1995–96		1996–97			1995–96		1996–97		
	Number	Percent	Number	Percent	Percent change	Number	Percent	Number	Percent	Percent change
All institutions	555,216	100.0	571,226	100.0	2.9	1,164,792	100.0	1,172,879	100.0	0.7
Control of institution										
Public	454,291	81.8	465,494	81.5	2.5	774,070	66.5	776,677	66.2	0.3
Private non-profit	50,678	9.1	49,168	8.6	-3.0	379,916	32.6	384,086	32.7	1.1
Private for-profit	50,247	9.0	56,564	9.9	12.6	10,806	0.9	12,116	1.0	12.1
Sex of recipient										
Men	219,514	39.5	223,948	39.2	2.0	522,454	44.9	520,515	44.4	-0.4
Women	335,702	60.5	347,278	60.8	3.4	642,338	55.1	652,364	55.6	1.6
Race/ethnicity of recipient										
White, non-Hispanic	417,158	75.1	419,994	73.5	0.7	883,875	75.9	878,460	74.9	-0.6
Minority	116,459	21.0	128,060	22.4	10.0	215,817	18.5	227,216	19.4	5.3
Black, non-Hispanic	50,927	9.2	55,054	9.6	8.1	89,284	7.7	91,986	7.8	3.0
Hispanic	37,430	6.7	42,568	7.5	13.7	56,900	4.9	60,902	5.2	7.0
Asian/Pacific Islander	22,644	4.1	24,586	4.3	8.6	62,824	5.4	67,086	5.7	6.8
American Indian/Alaska Native	5,458	1.0	5,852	1.0	7.2	6,809	0.6	7,242	0.6	6.4
Race/ethnicity unknown	11,399	2.1	12,408	2.2	8.9	27,401	2.4	28,275	2.4	3.2
Nonresident alien	10,131	1.8	10,764	1.9	6.2	37,690	3.2	38,928	3.3	3.3
Unreported*	69	0.0	0	0.0	(†)	9	0.0	0	0.0	(†)

	Master's degrees					Doctor's degrees				
	1995–96		1996–97			1995–96		1996–97		
	Number	Percent	Number	Percent	Percent change	Number	Percent	Number	Percent	Percent change
All institutions	406,301	100.0	419,401	100.0	3.2	44,652	100.0	45,876	100.0	2.7
Control of institution										
Public	227,179	55.9	233,237	55.6	2.7	29,516	66.1	29,838	65.0	1.1
Private non-profit	175,263	43.1	181,104	43.2	3.3	14,853	33.3	15,694	34.2	5.7
Private for-profit	3,859	0.9	5,060	1.2	31.1	283	0.6	344	0.7	21.6
Sex of recipient										
Men	179,081	44.1	180,947	43.1	1.0	26,841	60.1	27,146	59.2	1.1
Women	227,220	55.9	238,454	56.9	4.9	17,811	39.9	18,730	40.8	5.2
Race/ethnicity of recipient										
White, non-Hispanic	282,338	69.5	288,552	68.8	2.2	26,363	59.0	27,183	59.3	3.1
Minority	57,035	14.0	61,217	14.6	7.3	5,158	11.6	5,551	12.1	7.6
Black, non-Hispanic	24,494	6.0	26,901	6.4	9.8	1,563	3.5	1,786	3.9	14.3
Hispanic	13,668	3.4	14,574	3.5	6.6	950	2.1	1,068	2.3	12.4
Asian/Pacific Islander	17,181	4.2	17,898	4.3	4.2	2,492	5.6	2,528	5.5	1.4
American Indian/Alaska Native	1,692	0.4	1,844	0.4	9.0	153	0.3	169	0.4	10.5
Race/ethnicity unknown	19,017	4.7	20,080	4.8	5.6	1,681	3.8	1,689	3.7	0.5
Nonresident alien	47,910	11.8	49,552	11.8	3.4	11,450	25.6	11,453	25.0	0.0
Unreported*	1	0.0	0	0.0	(†)	0	0.0	0	0.0	(†)

See footnotes on second page of this table.

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Table B.—Number and percentage distribution of degrees conferred by Title IV eligible, degree-granting institutions, by level of degree, control of institution, sex, and race/ethnicity of recipient: 50 states and the District of Columbia, 1995–96 and 1996–97—Continued

	First-professional degrees					Total degrees				
	1995–96		1996–97			1995–96		1996–97		
	Number	Percent	Number	Percent	Percent change	Number	Percent	Number	Percent	Percent change
All institutions	76,734	100.0	78,730	100.0	2.6	2,247,695	100.0	2,288,112	100.0	1.8
Control of institution										
Public	29,882	38.9	31,243	39.7	4.6	1,514,938	67.4	1,536,489	67.2	1.4
Private non-profit	46,532	60.6	47,029	59.7	1.1	667,242	29.7	677,081	29.6	1.5
Private for-profit	320	0.4	458	0.6	43.1	65,515	2.9	74,542	3.3	13.8
Sex of recipient										
Men	44,748	58.3	45,564	57.9	1.8	992,638	44.2	998,120	43.6	0.6
Women	31,986	41.7	33,166	42.1	3.7	1,255,057	55.8	1,289,992	56.4	2.8
Race/ethnicity of recipient										
White, non-Hispanic	58,166	75.8	58,972	74.9	1.4	1,667,900	74.2	1,673,161	73.1	0.3
Minority	15,255	19.9	16,442	20.9	7.8	409,724	18.2	438,486	19.2	7.0
Black, non-Hispanic	4,913	6.4	5,184	6.6	5.5	171,181	7.6	180,911	7.9	5.7
Hispanic	3,394	4.4	3,529	4.5	4.0	112,342	5.0	122,641	5.4	9.2
Asian/Pacific Islander	6,495	8.5	7,226	9.2	11.3	111,636	5.0	119,324	5.2	6.9
American Indian/ Alaska Native	453	0.6	503	0.6	11.0	14,565	0.6	15,610	0.7	7.2
Race/ethnicity unknown	1,690	2.2	1,670	2.1	-1.2	61,188	2.7	64,122	2.8	4.8
Nonresident alien	1,622	2.1	1,646	2.1	1.5	108,803	4.8	112,343	4.9	3.3
Unreported*	1	0.0	0	0.0	(†)	80	0.0	0	0.0	(†)

*Includes data for institutions that could not report degrees by race/ethnicity and for which data were not imputed in 1995–96. Additional analysis in 1996–97 allowed assigning these data to race/ethnicity category.

†Not applicable.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 and 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:1995–96 and IPEDS-C:1996–97) and "Consolidated Survey" (IPEDS-CN:FY1996 and IPEDS-CN:FY1997).

more than 5 percent higher than at 2-year institutions (table C).

Nearly one-fifth (18.9 percent) of all bachelor's degrees were awarded in business management/administrative services. Another 10.6 percent were awarded in the social sciences and history, while 9.0 percent were awarded in education. Bachelor's degrees in mathematics and the physical sciences comprised only 2.8 percent of all bachelor's degrees awarded (tables D and E).

Almost one-half (49.4 percent) of the master's degrees awarded were in two areas: education (26.2 percent) and business management/administrative services (23.1 percent). Awards in health professions and engineering constituted the next highest number of master's degrees conferred (8.6 percent and 6.1 percent, respectively) (tables D and E).

At the doctoral level, business management and the health professions accounted for only about 8.7 percent of the doctor's degrees awarded in 1996–97. On the other hand, the physical and biological sciences accounted for 20.2 percent of the doctor's degrees (9.7 and 10.5 percent, respectively). The single field accounting for the highest percentage of doctor's degrees was education (14.7 percent), followed by engineering (13.5 percent) (tables D and E).

Reference

Morgan, R.L., Hunt, E.S., and Carpenter, J.M. (1991). *Classification of Instructional Programs: 1990 Edition* (NCES 91–396). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Table C.—Number and percentage distribution of associate's degrees conferred by Title IV eligible, degree-granting institutions, by level of institution and field of study: 50 states and the District of Columbia, 1996–97

		Two-year		Four-year	
Field of study[1]	Total	Total	Percent	Total	Percent
Total, all fields	571,226	489.314 [2](85.7%)	100.0	81,912 [2](16.7%)	100.0
Agricultural business & production	4,176	3,459	0.7	717	0.9
Agricultural sciences	845	651	0.1	194	0.2
Architecture and related programs	316	202	0.0	114	0.1
Area, ethnic, and cultural studies	84	66	0.0	18	0.0
Biological sciences/life sciences	2,116	2,073	0.4	43	0.1
Business management & admin. services	95,532	81,305	16.6	14,227	17.4
Communications	2,030	1,709	0.3	321	0.4
Communications technologies	1,743	1,578	0.3	165	0.2
Computer & information sciences	10,990	9,179	1.9	1,811	2.2
Conservation & renew. natural resources	1,442	1,151	0.2	291	0.4
Construction trades	1,928	1,737	0.4	191	0.2
Education	10,526	9,719	2.0	807	1.0
Engineering	1,952	1,706	0.3	246	0.3
Engineering-related technologies	33,810	24,764	5.1	9,046	11.0
English language & literature/letters	1,455	1,424	0.3	31	0.0
Foreign languages and literatures	689	488	0.1	201	0.2
Health professions & related sciences	98,921	80,394	16.4	18,527	22.6
Home economics	986	728	0.1	258	0.3
Law & legal studies	8,968	7,626	1.6	1,342	1.6
Liberal/general studies & humanities	181,341	165,223	33.8	16,118	19.7
Library science	126	109	0.0	17	0.0
Marketing opers./market. & distribution	5,656	4,590	0.9	1,066	1.3
Mathematics	792	773	0.2	19	0.0
Mechanics & repairers	12,180	11,218	2.3	962	1.2
Military technologies	556	554	0.1	2	0.0
Multi/interdisciplinary studies	9,182	8,826	1.8	356	0.4
Parks, recreation, leisure & fitness	913	874	0.2	39	0.0
Personal & miscellaneous services	8,211	4,898	1.0	3,313	4.0
Philosophy & religion	89	44	0.0	45	0.1
Physical sciences	1,728	1,692	0.3	36	0.0
Precision production trades	10,368	7,805	1.6	2,563	3.1
Protective services	19,889	17,294	3.5	2,595	3.2
Psychology	1,612	1,494	0.3	118	0.1
Public administration & services	4,270	3,565	0.7	705	0.9
Science technologies	798	668	0.1	130	0.2
Social sciences & history	4,056	3,735	0.8	321	0.4
Theological studies/religious vocations	574	26	0.0	548	0.7
Transportation & material moving workers	1,612	1,276	0.3	336	0.4
Visual & performing arts	13,593	10,255	2.1	3,338	4.1
Vocational home economics	7,565	7,034	1.4	531	0.6
Undesignated fields[3]	7,606	7,402	1.5	204	0.2

[1] Degrees by field of study are aggregated to the 2-digit CIP level as defined in the 1990 version of the Classification of Instructional Programs (see Morgan, Hunt, and Carpenter [NCES 91-396]).

[2] Percents of total degrees.

[3] Includes degrees reported for fields with no CIP code, schools reporting only total degrees by award level and sex, and nonrespondents for which field of study could not be imputed.

NOTE: Data represent programs, not organizational units within institutions. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:1996–97) and "Consolidated Survey" (IPEDS-CN:FY1997).

Table D.--Number and percentage distribution of degrees conferred by Title IV eligible, degree-granting institutions, by level of degree and field of study: 50 states and the District of Columbia, 1996-97

Field of study[1]	Bachelor's degrees		Master's degrees		Doctor's degrees	
	Total	Percent	Total	Percent	Total	Percent
Total, all fields	1,172,879	100.0	419,401	100.0	45,876	100.0
Agricultural business & production	5,027	0.4	598	0.1	181	0.4
Agricultural sciences	7,876	0.7	1,609	0.4	690	1.5
Architecture and related programs	7,944	0.7	4,034	1.0	135	0.3
Area, ethnic, and cultural studies	5,839	0.5	1,651	0.4	182	0.4
Biological sciences/life sciences	63,975	5.5	6,466	1.5	4,812	10.5
Business management & admin. services	221,875	18.9	96,923	23.1	1,334	2.9
Communications	47,230	4.0	5,227	1.2	296	0.6
Communications technologies	538	0.0	374	0.1	4	0.0
Computer & information sciences	24,768	2.1	10,098	2.4	857	1.9
Conservation & renew. natural resources	9,699	0.8	2,309	0.6	346	0.8
Construction trades	108	0.0	0	0.0	0	0.0
Education	105,233	9.0	110,087	26.2	6,751	14.7
Engineering	61,185	5.2	25,787	6.1	6,201	13.5
Engineering-related technologies	13,816	1.2	1,040	0.2	9	0.0
English language & literature/letters	49,345	4.2	7,722	1.8	1,575	3.4
Foreign languages & literatures	13,674	1.2	3,077	0.7	915	2.0
Health professions & related sciences	85,631	7.3	35,958	8.6	2,672	5.8
Home economics	16,113	1.4	2,866	0.7	382	0.8
Law & legal studies	2,038	0.2	2,886	0.7	81	0.2
Liberal/general studies & humanities	34,776	3.0	2,661	0.6	77	0.2
Library science	48	0.0	4,982	1.2	46	0.1
Marketing opers./market. & distribution	4,549	0.4	673	0.2	2	0.0
Mathematics	12,820	1.1	3,783	0.9	1,174	2.6
Mechanics and repairers	48	0.0	0	0.0	0	0.0
Military technologies	4	0.0	136	0.0	0	0.0
Multi/interdisciplinary studies	26,137	2.2	2,819	0.7	451	1.0
Parks, recreation, leisure & fitness	15,401	1.3	1,966	0.5	108	0.2
Personal & miscellaneous services	209	0.0	23	0.0	0	0.0
Philosophy & religion	7,685	0.7	1,252	0.3	593	1.3
Physical sciences	19,417	1.7	5,546	1.3	4,467	9.7
Precision production trades	326	0.0	3	0.0	0	0.0
Protective services	25,165	2.1	1,845	0.4	31	0.1
Psychology	74,191	6.3	14,353	3.4	4,053	8.8
Public administration & services	20,649	1.8	24,781	5.9	518	1.1
Science technologies	114	0.0	17	0.0	7	0.0
Social sciences & history	124,891	10.6	14,787	3.5	3,989	8.7
Theological studies/religious vocations	5,591	0.5	4,975	1.2	1,395	3.0
Transportation & material moving workers	3,547	0.3	919	0.2	0	0.0
Visual & performing arts	50,083	4.3	10,627	2.5	1,060	2.3
Vocational home economics	458	0.0	22	0.0	0	0.0
Undesignated fields[2]	4,856	0.4	4,519	1.1	482	1.1

[1] Degrees by field of study are aggregated to the 2-digit CIP level as defined in the 1990 version of the Classification of Instructional Programs (see Morgan, Hunt, and Carpenter [NCES 91-396]).

[2] Includes degrees reported for fields with no CIP code, schools reporting only total degrees by award level and sex, and nonrespondents for which field of study could not be imputed.

NOTE: Data represent programs, not organizational units within institutions. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:1996-97) and "Consolidated Survey" (IPEDS-CN:FY1997).

Table E.—Fields of study receiving the largest number of bachelor's, master's, and doctor's degrees conferred by Title IV eligible, degree-granting institutions, by level of degree and sex of recipient: 50 states and the District of Columbia, 1996–97

Field of study*	Total degrees	Men		Women	
		Total	Percent	Total	Percent
Bachelor's degrees					
Business management & admin. services	221,875	114,500	51.6	107,375	48.4
Social sciences & history	124,891	64,115	51.3	60,776	48.7
Education	105,233	26,271	25.0	78,962	75.0
Health professions & related sciences	85,631	15,877	18.5	69,754	81.5
Psychology	74,191	19,379	26.1	54,812	73.9
Biological sciences/life sciences	63,975	29,470	46.1	34,505	53.9
Engineering	61,185	50,058	81.8	11,127	18.2
Visual & performing arts	50,083	20,729	41.4	29,354	58.6
English language & literature/letters	49,345	16,531	33.5	32,814	66.5
Communications	47,230	19,412	41.1	27,818	58.9
Master's degrees					
Education	110,087	25,806	23.4	84,281	76.6
Business management & admin. services	96,923	59,235	61.1	37,688	38.9
Health professions & related sciences	35,958	7,702	21.4	28,256	78.6
Engineering	25,787	21,120	81.9	4,667	18.1
Public administration & services	24,781	6,957	28.1	17,824	71.9
Social sciences & history	14,787	7,830	53.0	6,957	47.0
Psychology	14,353	3,852	26.8	10,501	73.2
Visual and performing arts	10,627	4,470	42.1	6,157	57.9
Computer & information sciences	10,098	7,248	71.8	2,850	28.2
English language & literature/letters	7,722	2,733	35.4	4,989	64.6
Doctor's degrees					
Education	6,751	2,512	37.2	4,239	62.8
Engineering	6,201	5,438	87.7	763	12.3
Biological sciences/life sciences	4,812	2,738	56.9	2,074	43.1
Physical sciences	4,467	3,438	77.0	1,029	23.0
Psychology	4,053	1,350	33.3	2,703	66.7
Social sciences & history	3,989	2,479	62.1	1,510	37.9
Health professions & related sciences	2,672	1,176	44.0	1,496	56.0
English language & literature/letters	1,575	670	42.5	905	57.5
Theological studies/religious vocations	1,395	1,143	81.9	252	18.1
Business management & admin. services	1,334	946	70.9	388	29.1

*Degrees by field of study are aggregated to the 2-digit CIP level as defined in the 1990 version of the Classification of Instructional Programs (see Morgan, Hunt, and Carpenter [NCES 91-396]).

NOTE: Data represent programs, not organizational units within institutions. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C:1996–97) and "Consolidated Survey" (IPEDS-CN:FY1997).

Data sources: The NCES Integrated Postsecondary Education Data System "Completions Survey" (IPEDS-C:1995–96 and IPEDS-C:1996–97) and "Consolidated Survey" (IPEDS-CN:FY1996 and IPEDS-CN:FY1997).

For technical information, see the complete report:

Morgan, F.B. (1999). *Degrees and Other Awards Conferred by Title IV Eligible Degree-Granting Institutions: 1996–97* (NCES 2000–174).

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Fall Staff in Postsecondary Institutions: 1997

Stephen Roey and Rebecca R. Skinner

This article was originally published as the Executive Summary of the E.D. Tabs report of the same name. The universe data are from the Integrated Postsecondary Education Data System "Fall Staff Survey" (IPEDS-S).

Introduction

This report presents tabulations for staff employed in Title IV eligible postsecondary institutions in fall 1997. Previous Fall Staff reports published by the U.S. Department of Education's National Center for Education Statistics (NCES) have focused on all institutions of higher education that were accredited at the college level by an agency recognized by the Secretary, U.S. Department of Education. The U.S. Department of Education is no longer distinguishing between postsecondary institutions that are accredited at the higher education level and those that have occupation/vocational accreditation. In lieu of this designation, NCES now classifies the postsecondary institutional universe by whether or not institutions grant degrees. This information is available directly from the Integrated Postsecondary Education Data System (IPEDS), conducted by NCES. The majority of this report focuses on degree-granting, Title IV eligible institutions, a subset of all postsecondary institutions eligible to participate in Title IV financial aid programs.[1] The data discussed in this report are from the "Fall Staff Survey," a component of IPEDS.

Title IV Eligible Postsecondary Institutions

In fall 1997, 2.81 million staff were employed in all Title IV eligible postsecondary institutions. The majority of staff was female (52 percent) and was employed full time (66 percent). Faculty composed 36 percent of all staff, and professional staff accounted for 67 percent of employees in these institutions (table 1 and figure 1).

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[1] For the remainder of this report, "Title IV eligible" schools are referred to as "eligible."

Table 1.—Number and percentage distribution of employees in Title IV eligible postsecondary institutions, by institution level, gender, employment status, faculty/nonfaculty status, and professional/nonprofessional status: 50 states and the District of Columbia, fall 1997

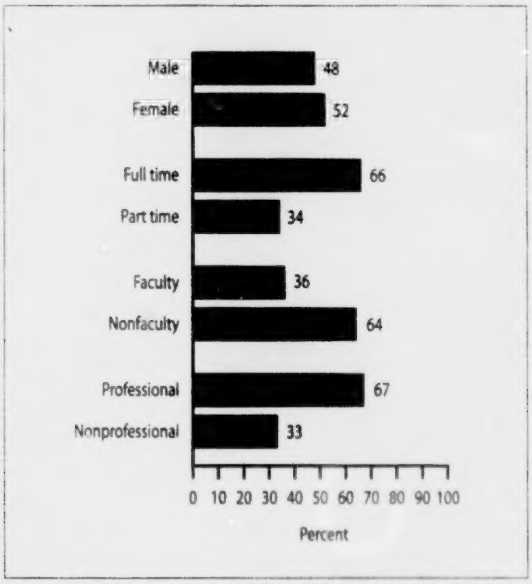
	Number								
		Gender		Employment status		Faculty status		Professional status	
Institution level	Total	Men	Women	Full time	Part time	Faculty	Nonfaculty	Professional	Non-professional
Total	2,808,710	1,337,065	1,471,645	1,864,586	944,124	1,020,786	1,787,924	1,881,691	927,019
4-year	2,206,825	1,069,261	1,137,564	1,554,514	652,311	683,473	1,523,352	1,451,742	755,083
2-year	568,532	255,282	313,250	288,094	280,438	319,986	248,546	402,242	166,290
Less-than-2-year	33,353	12,522	20,831	21,978	11,375	17,327	16,026	27,707	5,646

		Percent							
		Gender		Employment status		Faculty status		Professional status	
Institution level	Total	Men	Women	Full time	Part time	Faculty	Nonfaculty	Professional	Non-professional
Total	2,808,710	47.6	52.4	66.4	33.6	36.3	63.7	67.0	33.0
4-year	2,206,825	48.5	51.5	70.4	29.6	31.0	69.0	65.8	34.2
2-year	568,532	44.9	55.1	50.7	49.3	56.3	43.7	70.8	29.2
Less-than-2-year	33,353	37.5	62.5	65.9	34.1	52.0	48.0	83.1	16.9

NOTE: Detail may not add to totals because of rounding. Faculty includes those whose principal activity is instruction, research, or public service. Professional staff includes staff in the following occupational categories: executive/administrative/managerial, faculty (instruction/research/public service), instruction/research assistants, and professional (support/service). Nonprofessional staff includes technical and paraprofessionals, clerical and secretarial, skilled crafts, and service/maintenance.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Figure 1.—Percentage distribution of employees in Title IV eligible postsecondary institutions, by gender, employment status, faculty/nonfaculty status, and professional/nonprofessional status: 50 states and the District of Columbia, fall 1997



NOTE: Faculty includes those whose principal activity is instruction, research, or public service. Professional staff includes staff in the following occupational categories: executive/administrative/managerial, faculty (instruction/research/public service), instruction/research assistants, and professional (support/service). Nonprofessional staff includes technical and paraprofessionals, clerical and secretarial, skilled crafts, and service/maintenance.

SOURCE: U.S. Department of Education, National Center for Education Statistics. 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Examined by institutional level, a similar pattern was observed at 4-year, eligible postsecondary institutions, which employed the majority of postsecondary employees. At 4-year institutions, 52 percent of staff were female, 70 percent were employed full time, 31 percent were faculty, and 66 percent were professional staff. Percentages at 2-year and less-than-2-year eligible institutions differed from those found at 4-year institutions. For example, larger percentages of employees were women at 2-year and less-than-2-year institutions (55 percent and 62 percent, respectively). Full-time employees composed smaller percentages of staff at both types of postsecondary institutions (51 percent and 66 percent, respectively), while faculty composed over half of all employees at both 2-year and less-than-2-year institutions (56 percent and 52 percent, respectively).

Degree-Granting, Title IV Eligible Postsecondary Institutions

Degree-granting, Title IV eligible postsecondary institutions represent a subset of all eligible postsecondary institutions. Overall, they employed 2.75 million staff, or 98 percent of all staff in eligible postsecondary institutions in fall 1997. Two-thirds of these employees were employed full time. A similar pattern was observed at 4-year postsecondary institutions and 2-year postsecondary institutions, but the difference between the number of full-time and part-time employees was smaller at 2-year postsecondary institutions (table 2).

Looking at the types of professional staff employed in degree-granting, eligible postsecondary institutions, men held more than half of the executive, administrative, and managerial; faculty; and instruction/research assistant positions (figure 2). Women held a majority of the other professional (support/service) positions and the part-time executive, administrative, and managerial positions.

At 4-year institutions, men also held a larger proportion of all professional occupations, except for other professional (support/service) positions. A similar pattern was found at 2-year institutions, but the differences in the number of positions held by men and women were smaller, and women outnumbered men in instruction/research assistant positions.

An examination of employees in degree-granting, eligible postsecondary institutions by institutional control reveals

Table 2.—Number of full- and part-time employees in degree-granting, Title IV eligible postsecondary institutions, by primary occupation, gender, institution level, and control of institution: 50 states and the District of Columbia, fall 1997

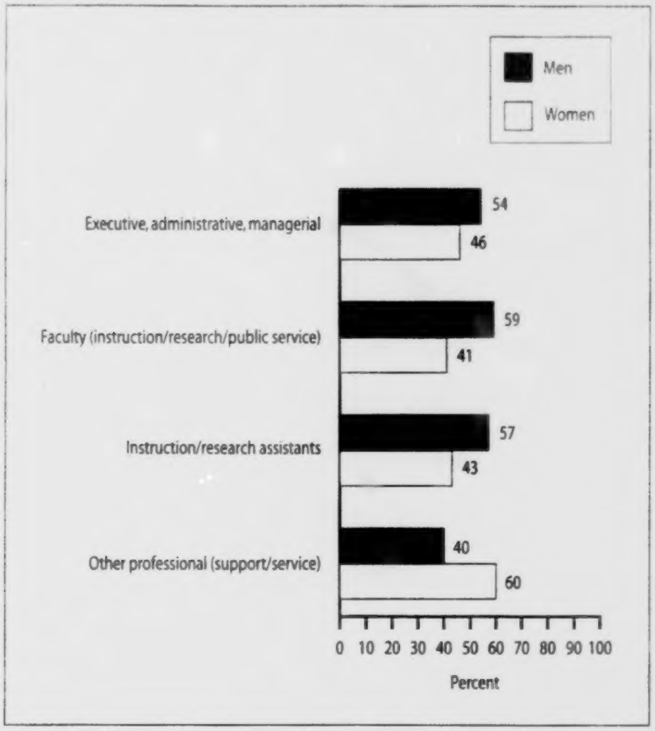
Institution level, control of institution, and employment status	Total staff	Total professional staff	Professional staff								Total non-professional staff
			Executive, administrative, managerial		Faculty (instruction/research/ public service)		Instruction/ research assistants		Other professional (support/ service)		
			Men	Women	Men	Women	Men	Women	Men	Women	
Total	2,752,504	1,835,916	81,931	69,432	587,420	402,393	125,873	96,851	187,646	284,370	916,588
Full time	1,828,507	1,104,834	78,945	65,584	363,925	204,794	(†)	(†)	159,321	232,265	723,673
Part time	923,997	731,082	2,986	3,848	223,495	197,599	125,873	96,851	28,325	52,105	192,915
Institution level											
4-year	2,205,295	1,450,457	67,818	56,746	429,863	252,787	124,150	94,395	170,249	254,449	754,838
Full time	1,553,646	935,505	65,632	53,958	306,807	153,283	(†)	(†)	145,880	209,945	618,141
Part time	651,649	514,952	2,186	2,788	123,056	99,504	124,150	94,395	24,369	44,504	136,697
2-year	547,209	385,459	14,113	12,686	157,557	149,606	1,723	2,456	17,397	29,921	161,750
Full time	274,861	169,329	13,313	11,626	57,118	51,511	(†)	(†)	13,441	22,320	105,532
Part time	272,348	216,130	800	1,060	100,439	98,095	1,723	2,456	3,956	7,601	56,218
Institution control											
Public											
4-year	1,418,661	932,972	36,211	25,763	257,577	146,532	103,263	79,218	115,082	169,316	485,689
Full time	994,688	594,851	35,196	24,684	199,316	97,329	(†)	(†)	99,338	138,988	399,837
Part time	423,973	338,121	1,025	1,079	58,261	49,203	103,263	79,218	15,744	30,328	85,852
2-year	512,086	358,367	12,327	10,495	149,094	141,357	1,395	2,166	15,527	26,006	153,719
Full time	251,759	152,030	11,593	9,523	52,492	47,571	(†)	(†)	11,801	19,050	99,729
Part time	260,327	206,337	734	972	96,602	93,786	1,395	2,166	3,726	6,956	53,99
Private not-for-profit											
4-year	765,663	499,694	30,880	30,273	164,375	101,412	20,129	14,824	54,292	83,509	265,969
Full time	550,531	334,609	29,724	28,580	105,881	55,189	(†)	(†)	45,768	69,467	215,922
Part time	215,132	165,085	1,156	1,693	58,494	46,223	20,129	14,824	8,524	14,042	50,047
2-year	11,566	8,401	572	594	2,715	2,755	28	53	557	1,127	3,165
Full time	7,631	5,336	538	553	1,516	1,382	(†)	(†)	449	898	2,295
Part time	3,935	3,065	34	41	1,199	1,373	28	53	108	229	870
Private for-profit											
4-year	20,971	17,791	717	710	7,911	4,843	758	353	875	1,624	3,180
Full time	8,427	6,045	712	694	1,610	765	(†)	(†)	774	1,490	2,382
Part time	12,544	11,746	5	16	6,301	4,078	758	353	101	134	798
2-year	23,557	18,691	1,214	1,597	5,748	5,494	300	237	1,313	2,788	4,866
Full time	15,471	11,963	1,182	1,550	3,110	2,558	(†)	(†)	1,191	2,372	3,508
Part time	8,086	6,728	32	47	2,638	2,936	300	237	122	416	1,358

†Not applicable.

NOTE: Faculty includes those whose principal activity is instruction, research, or public service. Instruction/research assistants are defined as part time only. Other professional (support/service) includes all other professional staff not included with executive/administrative/managerial, faculty (instruction/research/public service), or instruction/research assistants. Nonprofessional staff includes technical and paraprofessionals, clerical and secretarial, skilled crafts, and service/maintenance.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Figure 2.—Percentage distribution of employees in degree-granting, Title IV eligible postsecondary institutions, by primary occupation and gender: 50 states and the District of Columbia, fall 1997



NOTE: Detail may not add to totals because of rounding. Faculty includes those whose principal activity is instruction, research, or public service. Other professional (support/service) includes all other professional staff not included with executive/administrative/managerial, faculty (instruction/research/public service), or instruction/research assistants.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997). (Originally published as figure 3 on p. 10 of the original report from which this article is excerpted.)

that the largest concentration of staff was in public institutions at all institutional levels. Full-time staff outnumbered part-time staff at public and private, not-for-profit 4-year institutions and at private not-for-profit and private for-profit 2-year institutions.

Full-Time Faculty in Degree-Granting, Title IV Eligible Postsecondary Institutions

In fall 1997, there were about 570,000 full-time faculty employed in degree-granting, eligible postsecondary institutions (table 3), representing 21 percent of all staff in degree-granting, eligible postsecondary institutions (derived from tables 2 and 3). Overall, white, non-Hispanics held 84 percent of all faculty positions (table 3). Asians or Pacific Islanders and black, non-Hispanics composed the second and third largest proportions of all full-time faculty in these institutions (6 percent and 5 percent, respectively). White, non-Hispanics also held a majority of the positions across every faculty rank. Asians or Pacific Islanders held the second largest proportion of faculty positions across the ranks of professor, associate professor, assistant professor, and other faculty. Black, non-Hispanics held the second largest proportion of faculty positions across the ranks of instructor and lecturer.

Table 3.—Number and percentage distribution of full-time faculty in degree-granting, Title IV eligible postsecondary institutions, by rank and race/ethnicity: 50 states and the District of Columbia, fall 1997

	Number							
Academic rank	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/ Alaska Native	Nonresident alien	Race/ ethnicity unknown
All ranks	568,719	477,130	27,723	14,768	31,259	2,291	12,968	2,580
Professors	163,632	145,025	5,240	2,921	8,508	413	1,090	435
Associate professors	128,262	110,047	6,047	2,979	7,067	376	1,373	373
Assistant professors	128,329	101,620	8,046	3,951	8,900	546	4,494	772
Instructors	68,329	56,395	4,575	2,654	2,612	463	973	657
Lecturers	14,342	11,556	805	553	655	63	628	82
Other faculty	65,825	52,487	3,010	1,710	3,517	430	4,410	261

	Percent							
Academic rank	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/ Pacific Islander	American Indian/ Alaska Native	Nonresident alien	Race/ ethnicity unknown
All ranks	568,719	83.9	4.9	2.6	5.5	0.4	2.3	0.5
Professors	163,632	88.6	3.2	1.8	5.2	0.3	0.7	0.3
Associate professors	128,262	85.8	4.7	2.3	5.5	0.3	1.1	0.3
Assistant professors	128,329	79.2	6.3	3.1	6.9	0.4	3.5	0.6
Instructors	68,329	82.5	6.7	3.9	3.8	0.7	1.4	1.0
Lecturers	14,342	80.6	5.6	3.9	4.6	0.4	4.4	0.6
Other faculty	65,825	79.7	4.6	2.6	5.3	0.7	6.7	0.4

NOTE: Detail may not add to totals because of rounding. Faculty includes those whose principal activity is instruction, research, or public service.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Table 4.—Number of postsecondary institutions in the 1997 "Fall Staff Survey" and survey response rates by survey form, and by sector of institution: 50 states and the District of Columbia

Survey form and sector of institution	Final universe	Number responded	Response rate
All postsecondary	6,559	6,065	92.5
"Fall Staff Survey" (S form)	4,096	3,783	92.4
"Consolidated Survey" (CN form)	2,463	2,282	92.7
4-year	2,366	2,188	92.5
Public	651	635	97.5
Private not-for-profit	1,552	1,407	90.7
Private for-profit	163	146	89.6
2-year	2,405	2,236	93.0
Public	1,234	1,169	94.7
Private not-for-profit	358	325	90.8
Private for-profit	813	742	91.3
Less-than-2-year	1,788	1,641	91.8
Public	225	213	94.7
Private not-for-profit	88	83	94.3
Private for-profit	1,475	1,345	91.2

NOTE: By definition, 4-year institutions offer a bachelor's degree or postbaccalaureate award of some kind; 2-year institutions offer at least one program of at least 2 years duration; and less-than-2-year schools offer only programs of less than 2 years' duration. The sector of an institution at the time of mailout may differ from its sector in the final universe because of a shift in the highest level of offering or due to improper classification the prior year. Therefore, some degree-granting institutions may return a Consolidated (CN) form instead of a Fall Staff (S) form. Response rates were calculated as the ratio of the number of completed survey forms divided by the number of schools in the final universe.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Table 5.—Number and survey response rates of postsecondary institutions, by Title IV eligibility, and by degree-granting status and sector of institution: 50 states and the District of Columbia, fall 1997

Degree-granting status and sector of institution	All institutions			Eligible			Not eligible		
	Final universe	Number responded	Response rate	Final universe	Number responded	Response rate	Final universe	Number responded	Response rate
All institutions	6,559	6,065	92.5	6,320	5,908	93.5	239	157	65.7
4-year									
Public	651	635	97.5	650	634	97.5	1	1	100.0
Private not-for-profit	1,552	1,407	90.7	1,533	1,395	91.0	19	12	63.2
Private for-profit	163	146	89.6	160	143	89.4	3	3	100.0
2-year									
Public	1,234	1,169	94.7	1,232	1,167	94.7	2	2	100.0
Private not-for-profit	358	325	90.8	330	309	93.6	28	16	57.1
Private for-profit	813	742	91.3	781	718	91.9	32	24	75.0
Less-than-2-year									
Public	225	213	94.7	218	208	95.4	7	5	71.4
Private not-for-profit	88	83	94.3	83	80	96.4	5	3	60.0
Private for-profit	1,475	1,345	91.2	1,333	1,254	94.1	142	91	64.1
Degree-granting	4,093	3,786	92.5	4,059	3,765	92.8	34	21	61.8
4-year									
Public	646	630	97.5	646	630	97.5	0	0	(†)
Private not-for-profit	1,518	1,379	90.8	1,508	1,374	91.1	10	5	50.0
Private for-profit	158	142	89.9	155	139	89.7	3	3	100.0
2-year									
Public	1,113	1,050	94.3	1,113	1,050	94.3	0	0	(†)
Private not-for-profit	176	160	90.9	170	159	93.5	6	1	16.7
Private for-profit	482	425	88.2	467	413	88.4	15	12	80.0
Non-degree-granting	2,466	2,279	92.4	2,261	2,143	94.8	205	136	66.3
4-year									
Public	5	5	100.0	4	4	100.0	1	1	100.0
Private not-for-profit	34	28	82.4	25	21	84.0	9	7	77.8
Private for-profit	5	4	80.0	5	4	80.0	0	0	(†)
2-year									
Public	121	119	98.4	119	117	98.3	2	2	100.0
Private not-for-profit	182	165	90.7	160	150	93.8	22	15	68.2
Private for-profit	331	317	95.8	314	305	97.1	17	12	70.6
Less-than-2-year									
Public	225	213	94.7	218	208	95.4	7	5	71.4
Private not-for-profit	88	83	94.3	83	80	96.4	5	3	60.0
Private for-profit	1,475	1,345	91.2	1,333	1,254	94.1	142	91	64.1
Outlying areas*	147	121	82.3	141	117	83.0	6	4	66.7
Degree-granting	81	70	86.4	80	69	86.2	1	1	100.0
Non-degree-granting	66	51	77.3	61	48	78.7	5	3	60.0

†Not applicable.

*The outlying areas include the Federated States of Micronesia, Guam, the Marshall Islands, the Northern Marianas, Palau, Puerto Rico, and the U.S. Virgin Islands. (Outlying area data are not included in institution totals.)

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Fall Staff Survey" (IPEDS-S:1997).

Data source: The 1997 NCES Integrated Postsecondary Education Data System "Fall Staff Survey" (IPEDS-S:1997).

For technical information, see the complete report:

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Distance Education at Postsecondary Education Institutions: 1997–98

Laurie Lewis, Kyle Snow, Elizabeth Farris, and Douglas Levin

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from two surveys on distance education, both conducted through the NCES Postsecondary Education Quick Information System (PEQIS).

Many see the rise in the availability of technology-supported distance education—that is, the delivery of instruction over a distance to individuals located in one or more venues—not only as a revolutionary opportunity to increase access to postsecondary education, but also as an opportunity to hasten the overall pace of reform in higher education (Ehrmann n.d.). In contrast to the institutional status quo, what was once an eclectic assortment of individually accessed, noncredit educational courses is quickly being knit into comprehensive degree- and certificate-granting programs (Phipps, Wellman, and Merisotis 1998). Indeed, if a recent article in *The Chronicle of Higher Education* (Blumenstyk 1999) is any indication, the distance education industry is thriving: "For an industry that barely existed three years ago, the level of activity is dizzying."

This report presents findings from the second nationally representative survey of distance education undertaken by the National Center for Education Statistics (NCES). This survey was conducted in winter 1998–99; it collected information about the 12-month 1997–98 academic year using the Postsecondary Education Quick Information System (PEQIS). A previous report, *Distance Education in Higher Education Institutions* (Lewis, Alexander, and Farris 1997), was based on data from a 1995 PEQIS survey of higher education institutions. The current report updates and expands upon the findings from the previous report in several important ways. Perhaps most significantly, the current (1997–98) survey expanded the universe of institutions from which it collected data, from higher education institutions to all 2-year and 4-year postsecondary institutions. In addition, this report also presents new information about fields of study and instructional levels of courses and programs offered through distance education, as well as information about how tuition and fees charged for distance education courses compare to those charged for on-campus courses. Finally, this report also provides trend information for higher education institutions, including changes in the percentage of higher education institutions offering distance education courses, enrollments and course offerings, and degree and certificate programs, as well as technologies used to deliver distance education courses.

Key Findings

Institutions and enrollments

Evidence suggests that distance education is becoming an increasingly visible feature of postsecondary education in this country. This report provides descriptive information about all 2-year and 4-year postsecondary education institutions that offered distance education in 1997–98, including enrollments in distance education courses at those institutions. Analyses of institutions and enrollments are presented by institutional type and size. Information is also included about enrollments by the level of course offerings (undergraduate or graduate/first-professional). Results of the 1997–98 PEQIS survey indicate that:

- About one-third of the nation's 2-year and 4-year postsecondary education institutions offered any distance education courses during the 12-month 1997–98 academic year, and another one-fifth of the institutions planned to start offering such courses within the next 3 years (table A). About half of the postsecondary institutions did not offer and did not plan to offer distance education courses in the next 3 years.
- Distance education was more likely to be conducted by public institutions: 78 percent of public 4-year institutions and 62 percent of public 2-year institutions offered distance education courses, compared with 19 percent of private 4-year and 5 percent of private 2-year institutions (table A). Distance education was also strongly related to institutional size: distance education courses were more likely to be offered by medium and large institutions than by small institutions.
- There were an estimated 1,661,100 enrollments[1] in all distance education courses and 1,363,670 enrollments in college-level, credit-granting distance education courses, with most of these at the undergraduate level. About half of the institutions that reported offering distance education courses in 1997–98 reported 300 or fewer enrollments in those courses.

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[1] If a student was enrolled in multiple courses, institutions were instructed to count the student for each course in which he or she was enrolled. Thus, enrollments may include duplicated counts of students.

Table A.—Number and percentage distribution of 2-year and 4-year postsecondary education institutions that offered distance education courses in 1997-98, that planned to offer them in the next 3 years, and that did not offer and did not plan to offer them in the next 3 years, by institutional characteristics

Institutional characteristic	Total number of institutions	Offered distance education in 1997–98		Planned to offer distance education in the next 3 years		Did not offer in 1997–98 and did not plan to offer in the next 3 years	
		Number	Percent	Number	Percent	Number	Percent
All institutions	5,010	1,680	34	990	20	2,340	47
Institutional type							
Public 2-year	1,230	760	62	250	20	230	18
Private 2-year	1,120	60	5	220	20	840	75
Public 4-year	610	480	78	70	12	60	10
Private 4-year	2,050	390	19	450	22	1,210	59
Size of institution							
Less than 3,000	3,800	730	19	840	22	2,230	59
3,000 to 9,999	820	610	75	110	14	90	12
10,000 or more	400	350	87	30	8	20	5

NOTE: Percentages are based on the estimated 5,010 2-year and 4-year postsecondary education institutions in the nation. Percentages are computed across each row. Because of rounding, percentages may not sum to 100 and detail may not sum to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Survey on Distance Education at Postsecondary Education Institutions," 1998–99. (Originally published as table 2 on p. 12 of the complete report from which this article is excerpted.)

Course offerings

Comprehensive information about the courses available through distance education and enrollments in those courses has not been widely available. To address this gap in the knowledge base, this report provides information about total courses and college-level, credit-granting courses offered through distance education by all postsecondary institutions. Analyses of course offerings are presented by institutional type, general field of study, and instructional level of the course (undergraduate or graduate/first-professional). According to the 1997–98 PEQIS survey:

- An estimated 54,470 different distance education courses[2] were offered, most of which were college-level, credit-granting courses (49,690). About half of the institutions that offered distance education courses in 1997–98 offered 15 or fewer different distance education courses, with 23 percent offering 1 to 5 courses (figure A). Public 2-year and 4-year institutions combined offered about 8 out of 10 of the distance education courses offered.
- The two fields in which more institutions that offered distance education courses offered college-level, credit-granting distance education courses were the general field of English, humanities, and the social and behavioral sciences (70 percent of institutions) and the field of business and management (55 percent of institutions).
- The general pattern was for institutions to offer for-credit distance education courses more at the undergraduate than at the graduate/first-professional level. The exceptions were in the fields of education, engineering, and library and information sciences, where more college-level, credit-granting distance education courses were offered at the graduate/first-professional level than at the undergraduate level.

Degree and certificate programs

While taking individual courses through distance education has the potential to increase access to postsecondary education among those who traditionally have not had access, it is the possibility of completing degree and certificate programs solely through distance education that offers the potential for the most dramatic changes in access and opportunity. This report presents information about the prevalence of distance education degree and certificate programs in all postsecondary institutions by institutional type, level of the degree and certificate programs, and general field of study. The 1997–98 PEQIS survey indicates that:

- Eight percent of all 2-year and 4-year postsecondary institutions offered college-level degree or certificate programs that were designed to be completed totally through distance education. Among the 34 percent of institutions that offered any distance education courses in 1997–98, 25 percent offered distance education degrees or certificates. Among all

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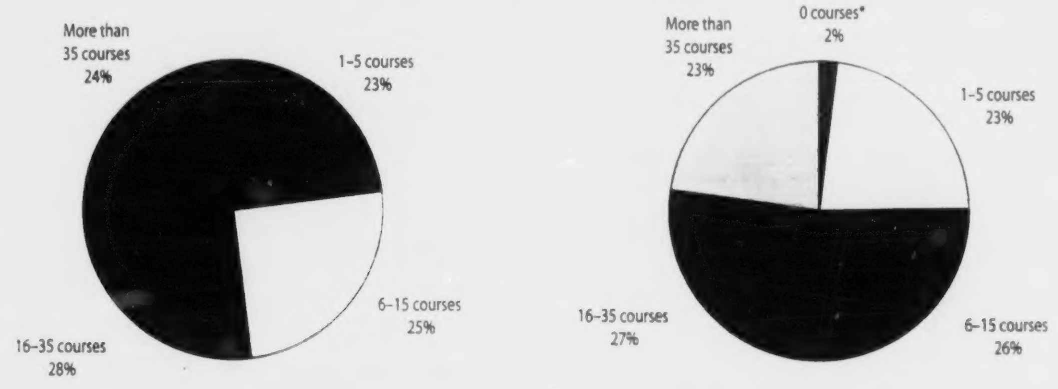
[2] If a course had multiple sections or was offered multiple times during the academic year, institutions were instructed to count it as only one course.

Figure A.—Percentage distribution of 2-year and 4-year postsecondary education institutions offering distance education courses in 1997–98 according to number of distance education courses



All distance education courses

College-level, credit-granting distance education courses

*Two percent of the institutions that offered any distance education courses did not offer college-level, credit-granting distance education courses.

NOTE: Percentages are based on the estimated 1,680 institutions that offered any distance education courses in 1997–98. Percentages may not sum to 100 because of rounding. If a course had multiple sections or was offered multiple times during the academic year, institutions were instructed to count it as only one course.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Survey on Distance Education at Postsecondary Education Institutions," 1998–99. (Originally published as figure 2 on p. 21 of the complete report from which this article is excerpted.)

postsecondary institutions, public 4-year institutions were more likely than other types of institutions to offer distance education degree and certificate programs.

- In 1997–98, 2-year and 4-year postsecondary institutions offered an estimated 1,230 distance education degree programs and 340 distance education certificate programs. Postsecondary institutions offering distance education programs were more likely to offer graduate/first-professional degrees or certificates than undergraduate degrees or certificates. Graduate/first-professional degree programs were most likely to be offered in business and management, the health professions, education, and engineering.

Distance education technologies employed

Changes in the types of technologies available for delivering distance education, including changes in the capabilities of networking technology and the rise of the Internet, have played a role in the adoption of distance education by postsecondary institutions. This report provides information about the types of technologies employed by all postsecondary institutions to deliver distance education in 1997–98. To provide insight into the dynamic nature of distance education technologies, the report also includes information about institutions' plans for the use of different technologies in the next 3 years. According to the 1997–98 PEQIS survey:

- While postsecondary education institutions employed a wide variety of distance education technologies during 1997–98, more institutions that offered distance education courses were likely to use several types of video technologies and the Internet-based technologies than any other modes of delivery included in the survey. Specifically, asynchronous Internet instruction, two-way interactive video, and one-way prerecorded video were used by more institutions than any other distance education technologies.
- Two-way interactive video was more likely to be used by public 4-year institutions (80 percent) than by any other type of institution, and by public 2-year institutions (53 percent) more than private 4-year institutions (29 percent). One-way prerecorded video was more likely to be used by public 2-year institutions (62 percent) than by either public or private 4-year institutions, and by public 4-year institutions (44 percent) more often than by private 4-year institutions (26 percent). The Internet technologies, however, were generally about equally likely to be

used by the various types of institutions, ranging from 16 percent to 22 percent for synchronous Internet instruction, and from 57 percent to 61 percent for asynchronous Internet instruction.

- Institutions that offered distance education in 1997–98 or that planned to offer distance education in the next 3 years reported that they planned to start using or increase their use of Internet-based technologies and two-way interactive video in the next 3 years more than any other types of technologies. This suggests that Internet and interactive video technologies will be a growing mode of delivery among postsecondary institutions.

Tuition and fees

While distance education can be seen as a cost savings approach to providing postsecondary education, the costs in developing, implementing, and delivering distance education courses can also be substantial. One might expect that institutions might pass these costs or cost savings on by charging different tuition and fees to students enrolled in distance education courses. To examine this issue, this report provides information about how tuition and fees for distance education courses compare to those for traditional campus-based courses. Analyses are presented by institutional type. Findings from the 1997–98 PEQIS survey indicate that:

- About three-quarters of institutions that offered any distance education courses in 1997–98 charged the same tuition for these courses as for comparable on-campus courses. Public 2-year institutions were more likely than public or private 4-year institutions to indicate that tuition charges were always the same for distance education and on-campus courses, with 90 percent of public 2-year institutions giving this response.
- Two-thirds of institutions offering distance education courses in 1997–98 reported that they did not add special fees to their college-level, credit-granting distance education courses that were not added to on-campus courses.
- Overall, 57 percent of institutions are charging both comparable tuition and comparable fees for distance education and on-campus courses.

Changes in distance education since 1994–95

While this report primarily presents findings on various aspects of distance education for all postsecondary institutions for 1997–98, an analysis of the data for the subset of higher education institutions allows trend comparisons with the previous NCES report on distance education. Changes in distance education since 1994–95[3] are presented in this report in terms of the percentage of institutions offering distance education courses, the number of distance education courses offered, the number of enrollments in distance education courses, the availability of distance education degree and certificate programs, and the technologies used to deliver distance education courses. Findings indicate that:

- Between fall 1995 and 1997–98, the percentage of higher education institutions offering distance education courses increased by about one-third, from 33 percent to 44 percent. From 1994–95 to 1997–98, the number of course offerings and enrollments in distance education approximately doubled. And, although the percentages of institutions offering distance education degree and certificate programs were essentially the same in 1997–98 as in 1995, the number of degree and certificate programs that were offered nearly doubled. Taken together, these findings suggest that the expansion in distance education appears to be among institutions that have offered distance education for the past 3 years. These institutions have substantially increased the number of distance education courses, enrollments, and degree and certificate programs that they offer.
- Among all higher education institutions offering any distance education, the percentages of institutions using two-way interactive video and one-way prerecorded video were essentially the same in 1997–98 as in 1995. The percentage of institutions using asynchronous Internet-based technologies, however, nearly tripled, from 22 percent of institutions in 1995 to 60 percent of institutions in 1997–98.[4]

Conclusions

This PEQIS report presents findings for the 12-month 1997–98 academic year about the status of distance education in all postsecondary education institutions. It also includes an analysis of trends in distance education since 1994–95 for the subset of higher education institutions. In the most general terms, it finds that distance education appears to have become a common feature of many postsecondary education institutions and that, by their own accounts, it will become only more common in the future.

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[3] The first PEQIS study, conducted in fall 1995, sometimes asked for information about the current time frame (i.e., fall 1995) and sometimes asked for information about academic year 1994–95. Thus, both dates appear in the discussion of the results.

[4] In the 1997–98 survey, the wording used to describe the computer-based technologies was changed to more accurately reflect how these technologies are used. For this comparison, other computer-based technology (e.g., Internet)—a category from the 1995 survey—is considered to be approximately equivalent to Internet courses using asynchronous computer-based instruction.

While findings from this report will help to inform stakeholders—including individuals considering a postsecondary education, faculty and administrators at postsecondary institutions, providers of technologies used for distance education, and policymakers at federal, state, and local levels—they do not address many of the questions about distance education. These questions include issues related to

- equity of access to postsecondary education,
- the costs of developing and implementing distance education programs,
- accreditation of and quality assurance in distance education programs,
- copyright and intellectual property rights,
- changes and challenges facing the role of postsecondary faculty, and
- pressures on existing organizational structures and arrangements.

It is a dynamic time for postsecondary education institutions facing the opportunities and challenges brought by technological innovation. As Gladieux and Swail (1999) assert, given the fact that computer and related technologies are evolving so quickly—and new providers and brokers of higher education proliferating so rapidly—no one knows how traditional higher education will change.

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For technical information, see the complete report:

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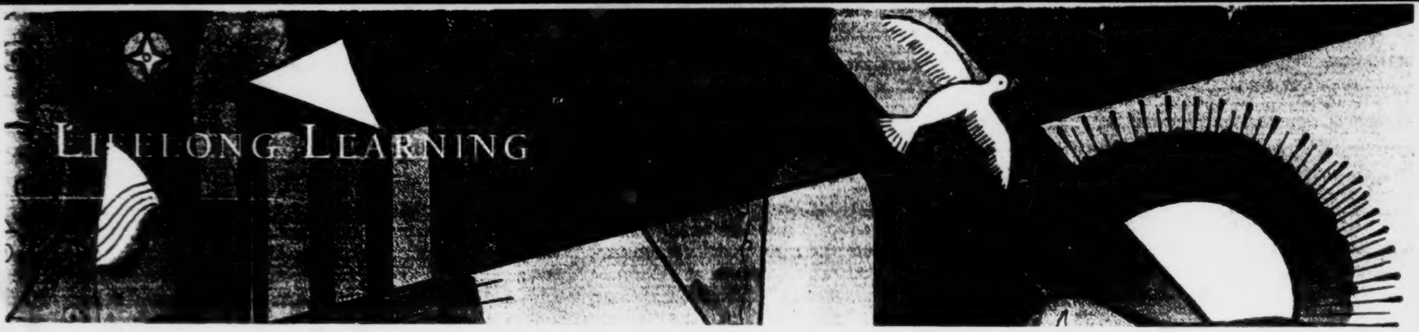


LIFELONG LEARNING

Participation in Adult Education in the United States: 1998–99
Kwang Kim and Sean Creighton 123

Participation in Adult Education in the United States: 1998–99

Kwang Kim and Sean Creighton

This article was originally published as a Statistics in Brief report. The sample survey data are from the NCES National Household Education Survey (NHES). Technical notes and standard errors from the original report have been omitted.

Introduction

Participation in adult education has grown steadily over the past 3 decades, increasing to 46 percent in 1999 (Hill 1987; Kim et al. 1995; Korb, Chandler, and West 1991). The participants engaged in some form of instruction or educational activity to acquire the knowledge, information, and skills necessary to succeed in the workforce, learn basic skills, earn credentials, or otherwise enrich their lives.

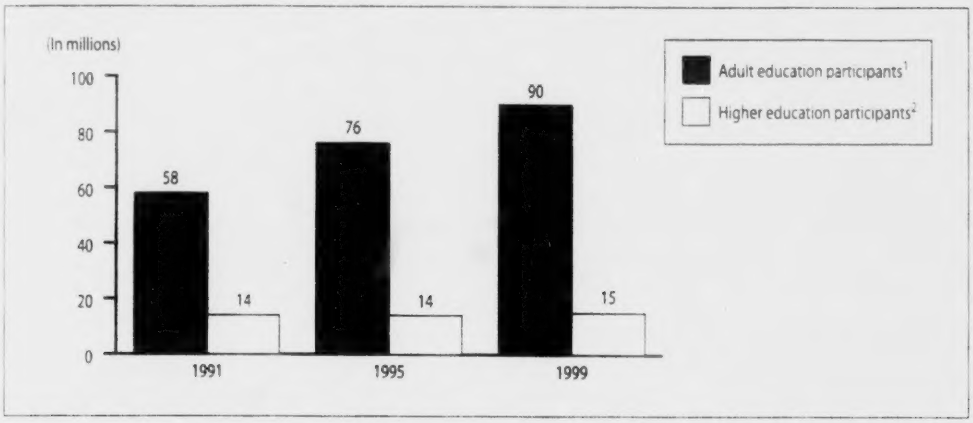
To put this phenomenon in context, it is useful to compare the numbers of adult education participants in 1991 and 1999 with persons enrolled in institutions of higher education at the same points in time. In 1991, an estimated 58 million adults in the United States had participated in adult education activities, including part-time credential programs, in the preceding 12 months; by 1999, this number had grown to an estimated 90 million adults. By comparison, there were an estimated 14 million persons enrolled in U.S. institutions of higher education in 1991, and projections indicate that this enrollment will increase to 15 million persons in 1999 (Gerald and Hussar 1998) (figure 1). Thus, participation in adult education was approximately four times the enrollment in higher education in 1991, and six times the higher education enrollment in 1999. Further, the increase in the number of adult education participants over this time period is about twice the number of all persons *enrolled* in higher education at either time point.

Findings from the National Household Education Survey (NHES:1991, NHES:1995, and NHES:1999) show that adult education is prevalent and increasing in contemporary American society. The 46 percent participation rate for the 12-month period prior to the 1999 interview (table 1) is higher than the reported participation rates in 1991 and 1995 (32 percent and 40 percent, respectively) (Kim et al. 1995). On the other hand, enrollment in higher education has remained relatively constant at 7.6 percent to 7.9 percent of the adult population (Gerald and Hussar 1998).

National Household Education Survey

This report contains the first release of information from the "Adult Education Interview" of NHES:1999 on the educational activities of adults in the United States from early 1998 to early 1999. The report focuses on the growth in participation in adult education activities and the extent to which participation is related to educational attainment. This analysis corroborates findings from previous studies showing that when an overall measure of participation is used, higher levels of participation are associated with higher levels of educational attainment (Courtney 1992; Cross 1984; Darkenwald and Merriam 1982; Kim et al. 1995; Merriam and Caffarella 1991). However, when participation is broken out into six component types and these are studied individually, the relationship between highest level of education and participation in adult education disappears (Kim et al. 1995). The relationship

Figure 1.—Number of participants in adult education and higher education: 1991, 1995, and 1999



[1] Adults who participated in a credential program on a full-time basis only, for part or all of the year, and did not participate in any other type of educational activity are not counted as participants in adult education. Adults who participated in a postsecondary credential program on a full-time basis only and also participated in another type of adult education or who participated in a postsecondary credential program on a part-time basis only or on both part-time and full-time bases are counted as participants.

[2] Total enrollment of higher education includes full-time and part-time students in both private and public institutions.

NOTE: Population includes civilian, noninstitutionalized adults age 16 and older, not enrolled in elementary or secondary school.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Adult Education Interview," 1991, 1995, and 1999; (1998) *Projections of Education Statistics to 2008* (NCES 98-016).

Table 1.—Percent of civilian, noninstitutionalized adults, 16 years of age or older, who participated in one or more types of adult education activities during the 12 months prior to the interview, by highest level of education attained: 1999

		Highest level of education attained			
Types of adult education	**Adults[1]**	**Less than a high school diploma or its equivalent**	**High school diploma or its equivalent**	**Some college, associate's degree, or vocational/ technical diploma**	**Bachelor's degree or higher**
Estimated number of adults (in thousands)	194,625	32,644	53,488	52,843	55,651
Types of activity (percent participating)					
Any adult education activity[2]	46	22	37	52	62
Any ABE/GED[3]	2	9	1	(#)	(†)
Any ESL[4]	1	3	1	1	1
Any credential program[5]	9	2	7	14	12
Any apprenticeship program	2	1	2	3	1
Any work-related course	23	4	17	25	38
Any personal development course	23	8	18	27	32

#Estimate too small to report.

†Not applicable. Persons with a bachelor's degree or more education were not asked about participation in adult basic education, GED preparation classes, adult high school, or high school equivalency programs.

[1] Includes civilian, noninstitutionalized adults, age 16 or older, not enrolled in elementary or secondary school at the time of the interview.

[2] Adults who participated in a postsecondary credential program on a full-time basis only, for part or all of the year, and did not participate in any other type of formal educational activity are not counted as participants in adult education. Adults who participated in a postsecondary credential program on a full-time basis only and also participated in another type of adult education are included in the overall rate and the rate for the type of noncredential adult education in which they participated, but not in the credential program rate.

[3] Adult Basic Education/General Educational Development (ABE/GED). Respondents who did not have a high school diploma or its equivalent, received a high school diploma or its equivalent in the past 12 months, or received a high school diploma in a foreign country, but no bachelor's degree, were asked about participation in adult basic education, GED preparation classes, and adult high school equivalency programs.

[4] English as a Second Language (ESL). Respondents whose primary language is not English were asked about participation in ESL classes.

[5] Adults who participated in a credential program on a part-time basis only or on both part-time and full-time bases are included in the credential rate and the overall rate.

NOTE: Percents for different types of adult education sum to more than the overall participation rate because some adults participate in more than one type of activity or program. Estimates may not sum to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Adult Education Interview," 1999.

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found in earlier studies may be driven by the fact that much of adult education is work related, and those with higher education are the most likely to take work-related courses.

NHES:1999 was a random-digit-dialed (RDD) telephone survey of the civilian, noninstitutionalized population of the 50 states and the District of Columbia conducted from January 3 through April 3 of 1999. For the "Adult Education Interview," the population of interest was civilian, noninstitutionalized adults age 16 and older who were not enrolled in elementary or secondary school at the time of the interview.

What Is "Adult Education"?

Adult education is a diverse arena defined in a variety of ways (Cross 1984; Elias and Merriam 1984; Knowles 1980; Merriam and Caffarella 1991; Peters et al. 1991). Some regard adult education as noncompulsory or voluntary learning activities constituting a continuous learning process throughout life (Belanger and Tuijnman 1997). Others include required activities in their definition because a fairly large proportion of adults are required to participate in work-related adult education for continuing professional development purposes (Cervero 1989). Yet another way of defining adult education includes not only formal coursework, but also informal educational activities. In those definitions, informal educational activities are those that do not involve an instructor.

NHES:1999 incorporates a broad approach, originally devised for use in NHES:1995 (Kim et al. 1995), to the range of activities that may be considered adult education. These include voluntary and required educational activities that are formal, as defined by the presence of an instructor. Informal learning activities are excluded. In NHES:1995 and NHES:1999,[1] respondents were asked about six types of adult education in the following order:

- English as a Second Language (ESL)[2]—classes for adults whose main language is not English to develop the English language skills necessary to pursue further education, to enter or advance in the job market, to enrich their personal and family lives, or to better adapt to American society.
- Adult basic education (ABE), General Educational Development (GED) preparation classes, and adult high school programs[3]—programs or classes to help adults improve basic reading, writing, and math skills or prepare for a high school diploma or its equivalent.
- Credential programs—formal postsecondary programs leading to a college or university degree, a postsecondary vocational or technical diploma, or other education certificates related to qualifications for jobs.
- Apprenticeship programs—formal, on-the-job training and other related instruction leading to a journeyman status in a skilled trade or craft.
- Work-related courses—those related to a job or career other than postsecondary credential programs or apprenticeship programs, whether or not respondents had a job when they took the courses. Some examples are courses taken at work, courses taken elsewhere that relate to a job or career, or courses for a license or certification for a job.
- Personal development courses—various types of educational activities that have an instructor and are not included in the categories described above. Examples include courses related to health, hobbies or sports, foreign languages, dance or music, and Bible study.

Respondents in NHES:1999 reported participation based on their understanding of the activities involved, and readers should not assume that the respondents' definitions are the same as those of federal, state, or private programs in adult basic education or ESL classes. Their participation status for purposes of the study was determined by whether they were involved in one or more of these six types of adult education where there was an instructor during the 12-month period prior to the interview. Because full-time enrollment in postsecondary credential programs has not traditionally been considered to be adult education, adults who reported participation in postsecondary credential programs as full-time students only and not in any other educational activity were not counted as participants.[4]

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[1] In NHES:1991, an approach based on previous Current Population Survey (CPS) collections was used. Adults were asked about their full-time and part-time participation in nine educational activities presented in list form. This approach was modified for NHES:1995 and NHES:1999, as discussed in the text.

[2] In the NHES:1999 survey administration, interviews were conducted in English and Spanish. As a result, the survey underrepresents participation in ESL among adults who do not speak English or Spanish.

[3] Persons who received their high school diplomas or equivalent during the 12 months prior to the interview and persons who received high school diplomas in a foreign country and did not have bachelor's degrees were also asked about their participation in ABE/GED activities in the previous 12 months.

Participation in One or More Types of Adult Education

Table 1 shows the percentages of adults who participated in adult education activities in the 12 months prior to the NHES:1999 interview, overall and by highest level of educational attainment. Of the six types of activities, adults were most likely to participate in work-related courses and personal development courses (23 percent for each). Other types of educational activities may have entrance criteria or be targeted to certain specific populations. About 9 percent of adults participated in credential programs, about 2 percent in ABE/GED classes, about 2 percent in apprenticeship programs, and about 1 percent in ESL classes. The sum of the percentages for each type of adult education (60 percent) is greater than the overall participation rate (46 percent) because some adults participated in more than one type of adult education.[5]

While some adults participated in only one type of adult education activity during the 12-month period prior to the interview, others participated in two or more types. Table 2 shows the distribution of adult education activities, classified so that each adult appears in only one category. About one adult in three (34 percent) participated in only one type

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[4] Most full-time postsecondary credential seekers are "traditional" college students who are 18 to 21 years old, although many are older (Snyder, Hoffman, and Geddes 1997). Full-time postsecondary credential-seeking is often regarded as traditional schooling rather than adult education. Some analysts, however, consider nontraditional credential seekers (e.g., adults over the traditional college age range) to be adult education participants.

[5] The difference between the sum of each type of adult education (60 percent) and the overall rate (46 percent) is 14 percent. As shown in table 2, 12 percent of adults participated in more than one type of activity. This apparent discrepancy (14 percent vs. 12 percent) is due to the summation of rounded percentages across the six categories of adult education.

Table 2.—Percent of civilian, noninstitutionalized adults, 16 years of age or older, who participated in one type or multiple types of adult education activities during the 12 months prior to the interview, by highest level of education attained: 1999

		Highest level of education attained			
Types of adult education	Adults[1]	Less than a high school diploma or its equivalent	High school diploma or its equivalent	Some college, associate's degree, or vocational/technical diploma	Bachelor's degree or higher
Estimated number of adults (in thousands)	194,625	32,644	53,488	52,843	55,651
Only one type of activity (percent participating)	34	18	29	38	43
ABE/GED[2] only	1	6	(#)	(#)	(†)
ESL[3] only	1	2	(#)	(#)	(#)
Credential program[4] only	4	1	4	6	4
Apprenticeship program only	1	1	1	2	(#)
Work-related course only	13	3	10	14	22
Personal development course only	13	5	13	15	16
Two or more types of activities	12	4	8	14	19
Credential program[4] & work-related	2	0	1	3	3
Credential program[4] & personal development	2	(#)	1	3	2
Work-related & personal development	6	1	4	6	11
Credential program,[4] work-related, & personal development	1	0	(#)	1	2
Any other combination of adult education activities	2	3	2	1	1

#Estimate too small to report.

†Not applicable. Persons with a bachelor's degree or more education were not asked about participation in adult basic education, GED preparation classes, adult high school, or high school equivalency programs.

[1] Includes civilian, noninstitutionalized adults, age 16 or older, not enrolled in elementary or secondary school at the time of the interview.

[2] Adult Basic Education/General Educational Development (ABE/GED). Respondents who did not have a high school diploma or its equivalent, received a high school diploma or its equivalent in the past 12 months, or received a high school diploma in a foreign country, but no bachelor's degree, were asked about participation in adult basic education, GED preparation classes, and adult high school equivalency programs.

[3] English as a Second Language (ESL). Respondents whose primary language is not English were asked about participation in ESL classes.

[4] Adults who participated in a postsecondary credential program on a full-time basis only, for part or all of the year, and did not participate in any other type of formal educational activity are not counted as participants in adult education. Adults who participated in a postsecondary credential program on a full-time basis only and also participated in another type of adult education are included in the overall rate and the rate for the type of noncredential adult education in which they participated, but not in the credential program rate. Adults who participated in a postsecondary credential program on a part-time basis only or on both part-time and full-time bases are included in the credential rate and the overall rate.

NOTE: Estimates may not sum to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Adult Education Interview," 1999.

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of adult education, and about one in eight (12 percent) participated in two or more types of activities.

Among participants in one type of educational activity, the most common activities were again work-related courses and personal development courses (both 13 percent). In addition, 6 percent of adults participated in both of these types of activities and none of the other types. Participation in these two activities, separately and in combination with each other only, accounts for 32 percent of adults, about two-thirds of the 46 percent overall participation rate. About 4 percent of adults participated in credential programs only, and about 2 percent or less participated in each of the other individual activities or combinations of activities.

Relationship Between Participation in Adult Education and Highest Level of Education

As shown in table 1, the overall participation rate increases with each level of education. During the 12 months prior to the 1999 interview, the overall participation rate for adults with less than a high school diploma was 22 percent as compared to 37 percent for those with a high school diploma; 52 percent for those with some college, an associate's degree, or a vocational/technical diploma; and 62 percent for those with a bachelor's degree or higher.

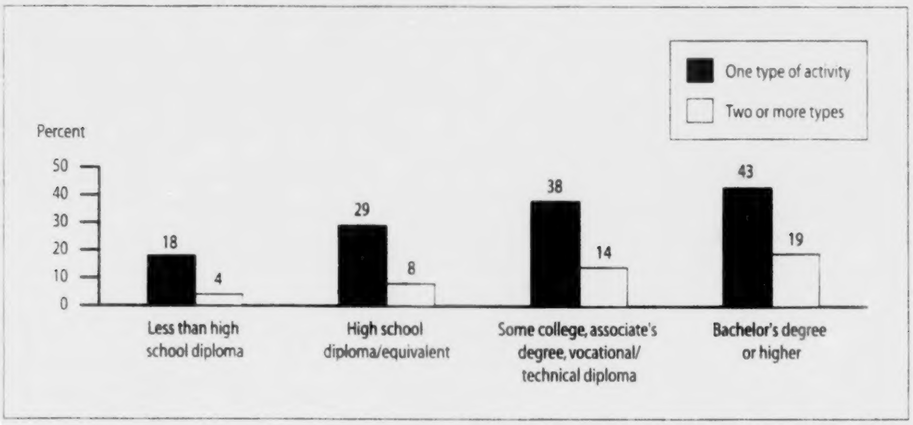
Table 1 also shows that different patterns of participation are observed when examining the relationship between educational attainment and participation in the six types of adult education separately. Participation rates in work-related and personal development courses, which dominate the activities reported, increase across levels of education from very low rates among those without a high school diploma to much higher rates among those with more education. Noticeably, the participation rate in work-related courses was about nine times higher for adults with a bachelor's degree or higher than for those with less than a high school diploma. However, those with less than a high school diploma participate *more* in ABE/GED and ESL classes than those with a high school diploma or higher. This result is consistent with the structure of the education system, where ABE/GED and ESL programs typically enroll those with lower education levels. Participation in credential programs also reflects the structure of the education system in that those with less than a high school diploma participate at very low levels; participation is highest among those with some college, an associate's degree, or a vocational/technical diploma; and participation tapers off for those who have already attained a bachelor's degree.

Table 2 and figure 2 examine whether the same relationships between levels of participation and educational attainment emerge when participation in one type of educational activity only is contrasted with participation in multiple types of activities. Comparing those with less than a high school diploma to those with a high school diploma or more education shows this to generally be the case. However, if those with less than a high school diploma are excluded, the only positive relationships that emerge between educational attainment and participation rates are in work-related courses or in work-related courses combined with other types of courses. Because work-related participation is such a large component of overall participation, it appears to be responsible for differences in overall participation and participation in multiple types of activities by educational attainment. Other studies suggest this relationship exists because employers tend to provide training for more educated employees (Vaughan 1989) and require more educated employees to participate in work-related education (Hudson 1999).

Summary

About 90 million adults (46 percent of adults) were engaged in one or more types of adult education in the 12-month period prior to the NHES:1999 interview. This represents a significant increase in participation compared to the rates observed in NHES:1991 and NHES:1995. Adults were most likely to participate in work-related courses and personal development courses. Participation rates overall and for these two most frequent types of educational activities were positively associated with adults' educational attainment. About 2 in 10 adults without a high school diploma participated in any educational activities, compared to more than 6 in 10 adults with a bachelor's degree or higher. However, the apparent direct relationship between participation in adult education and educational attainment, on closer examination, may result from a divide between those with less than a high school diploma and others, and from participation of more highly educated adults in work-related educational activities.

Figure 2.—Percent of adults age 16 and older participating in one type or multiple types of adult education activity, by highest level of education attained: 1999



NOTE: Population includes civilian, noninstitutionalized adults age 16 and older, not enrolled in elementary or secondary school.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Adult Education Interview," 1999.

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For technical information, see the complete report:

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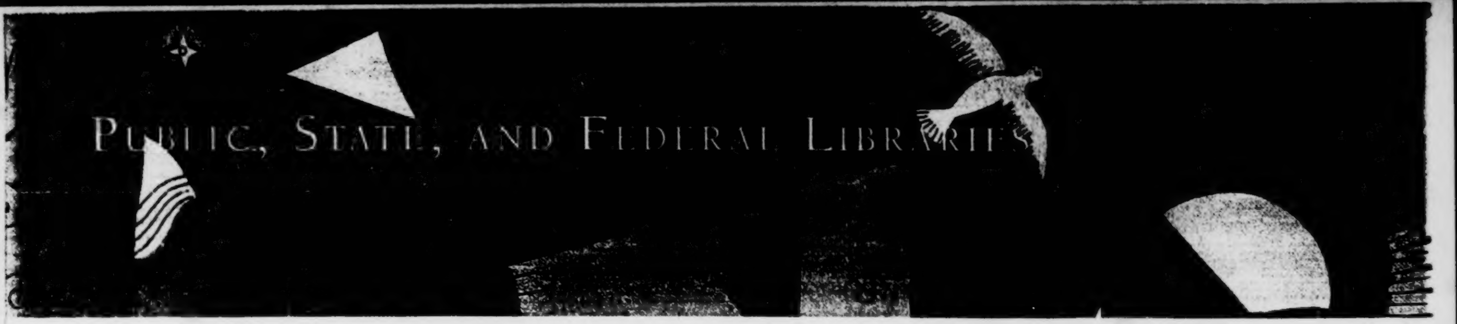

PUBLIC, STATE, AND FEDERAL LIBRARIES

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Margaret W. Cahalan and Natalie M. Justh 129

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Academic Libraries: 1996

Margaret W. Cahalan and Natalie M. Justh

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the NCES Integrated Postsecondary Education Data System "Academic Libraries Survey" (IPEDS-L).

Introduction

The tables in this report summarize library services, library staff, library collections, and library expenditures for libraries in higher education institutions in the 50 states and the District of Columbia. Library staff data are for fall 1996. Operating expenditures and library collections are for fiscal year (FY) 1996. Library circulation and interlibrary loans are for FY 96, and other library services are for a typical week in fall 1996. FY 96 is defined as any 12-month period between July 1, 1995, and September 30, 1996, that corresponds to the institution's fiscal year.

This report is based on information from the 1996 Integrated Postsecondary Education Data System "Academic Libraries Survey" (IPEDS-L:1996). The "Academic Libraries Survey" has been carried out by the National Center for Education Statistics (NCES) since 1966. Although there have been changes in the survey questionnaire over the years, the series is generally considered to be continuous. Beginning with the 1988 survey, the "Academic Libraries Survey" has been conducted on a 2-year cycle as a component of IPEDS. IPEDS is the U.S. Department of Education's vehicle for collecting data from all postsecondary institutions in the United States. Other surveys included within IPEDS are the "Institutional Characteristics Survey," "Fall Enrollment Survey," "Completions Survey," "Finance Survey," "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey," and "Fall Staff Survey."

The data in this report come from the higher education institutions in IPEDS and include all colleges and universities with accreditation at the higher education level as recognized by the Secretary of Education. At the national level, 94.2 percent of the libraries responded, and data were imputed for nonresponse. Caution should be exercised when comparing estimates by state because different states had different levels of nonresponse. For state-level data, as well as details on nonresponse and imputation, see the complete report. This article presents highlights for the nation.

Number of Academic Libraries

In fall 1996, 3,408 of the 3,792 institutions of higher education in the United States reported that they had their own academic library.

Services

Circulation

In FY 96, general collection circulation transactions in the nation's academic libraries at institutions of higher education totaled 186.5 million. Reserve collection circulation transactions totaled 44.2 million. For general and reserve circulation transactions taken together, the median circulation was 15.0 per full-time-equivalent (FTE) student.[1] The median total circulation ranged from 8.4 transactions per FTE student in less-than-4-year institutions to 28.0 in doctorate-granting institutions.

Interlibrary loans

In FY 96, academic libraries provided a total of about 9.4 million interlibrary loans to other libraries (both higher education and other types of libraries) and received about 7.5 million loans.

Public-service hours

Overall, the largest percentage of academic libraries (44 percent) reported having 60–79 hours of service per typical week in fall 1996. However, 40 percent provided 80 or more public-service hours per typical week. The percentage of institutions providing 80 or more public-service hours ranged from 7 percent in less-than-4-year institutions to 77 percent in doctorate-granting institutions.

Electronic services

In FY 96, 80 percent of institutions with an academic library had access from within the library to an electronic catalog of the library's holdings, 81 percent had Internet access within the library, and 40 percent had library reference service by e-mail.

Other services

- Taken together, academic libraries reported a gate count of about 16.5 million visitors per typical week (about 1.6 visits per FTE student enrolled).[2]
- About 1.9 million reference transactions were reported in a typical week.
- Over FY 96, about 407,000 presentations to groups serving about 7.3 million persons were reported.

Collections

Total number of volumes

Taken together, the nation's 3,408 academic libraries at institutions of higher education held a total of 806.7 million volumes (books, bound serials, and bound government documents) (table A) representing about 449.2 million unduplicated titles at the end of FY 96.

Of the total volumes held at the end of the fiscal year, 44 percent (352.1 million) were held at the 125 institutions categorized under the 1994 Carnegie classification as Research I or Research II institutions (table A). About 55 percent of the volumes were at those institutions classified as either Research or Doctoral in the Carnegie classification.

Median volumes per student

The median number of volumes held per FTE student was 58.2. Median volumes held ranged from 19.0 per FTE student in less-than-4-year institutions to 111.2 in doctorate-granting institutions.

In FY 96, the median number of volumes added to collections per FTE student was 1.5. The median number added ranged from .6 per FTE student in less-than-4-year institutions to 2.8 in doctorate-granting institutions.

Staff

A total of 95,580 FTE staff were working in academic libraries in fall 1996. Of these, about 27,268 (29 percent) were librarians or other professional staff; 40,022 (42 percent) were other paid staff; 291 (less than one-half of 1 percent) were contributed services staff;[3] and 27,998 (29 percent) were student assistants.

Excluding student assistants, the institutional median number of academic library FTE staff per 1,000 FTE students was 5.8. The median ranged from 3.6 in less-than-4-year institutions to 9.5 in doctorate-granting institutions.

Expenditures

In FY 96, operating expenditures for libraries at the 3,408 institutions of higher education totaled $4.3 billion. The three largest individual expenditure items for all academic libraries were salaries and wages, $2.1 billion (50 percent); current serial subscription expenditures, $780.8 million (18 percent); and books and bound serials, $472.6 million (11 percent).

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[1] FTE enrollment is calculated by adding one-third of part-time enrollment to full-time enrollment. Enrollment data are from the 1995 IPEDS "Fall Enrollment Survey."

[2] Based on total FTE enrollment of 9,974,242.

[3] Contributed services staff are those, such as members of religious orders, whose services are valued by bookkeeping entries rather than by full cash transactions. They do *not* include volunteers.

Table A.—Number of volumes of books, bound serials, and bound government documents held at the end of the year, and number of libraries by number of volumes, by control, level, size, and Carnegie classification of institution: 1996

Institutional characteristic	Total number of libraries	Volumes held at end of year
All higher education institutions[1]	3,408	806,717,207
Control		
Public	1,573	469,863,888
Private	1,835	336,853,319
Level[2]		
Total 4-year and above	2,115	753,862,302
Doctor's	538	517,545,197
Master's	905	175,152,602
Bachelor's	670	61,076,696
Less than 4-year	1,293	52,854,905
Size (FTE enrollment)		
Less than 1,500	1,839	112,481,064
1,500 to 4,999	1,011	156,309,326
5,000 or more	558	537,926,817
Carnegie classification (1994)[2]		
Research I and II	125	352,060,127
Doctoral I and II	110	89,203,834
Master's I and II	518	161,988,226
Baccalaureate I and II	599	98,133,980
Associate of Arts	1,182	52,372,106
Specialized	558	43,081,619
Not classified	316	9,877,315

Table A.—Number of volumes of books, bound serials, and bound government documents held at the end of the year, and number of libraries by number of volumes, by control, level, size, and Carnegie classification of institution: 1996—Continued

	Number of libraries in volume category									
Institutional characteristic	Less than 5,000	5,000–9,999	10,000–19,999	20,000–29,999	30,000–49,999	50,000–99,999	100,000–249,999	250,000–499,999	500,000–999,999	1,000,000 or more
All higher education institutions[1]	320	158	213	241	450	691	747	275	153	160
Control										
Public	43	57	77	145	297	362	231	146	106	109
Private	277	101	136	96	153	329	516	129	47	51
Level[2]										
Total 4-year and above	115	48	90	89	155	361	673	273	151	160
Doctor's	12	6	8	5	14	35	131	83	93	151
Master's	35	19	24	22	39	177	378	151	51	9
Bachelor's	68	23	58	61	102	148	164	39	7	0
Less than 4-year	205	110	123	152	295	330	74	2	2	0
Size (FTE enrollment)										
Less than 1,500	309	138	186	193	257	352	363	36	4	1
1,500 to 4,999	9	20	26	47	185	249	297	135	36	7
5,000 or more	2	0	1	1	8	90	87	104	113	152
Carnegie classification (1994)[2]										
Research I and II	0	0	0	0	0	0	1	1	10	113
Doctoral I and II	1	0	0	0	0	0	10	20	44	35
Master's I and II	1	0	3	4	3	47	211	164	76	9
Baccalaureate I and II	1	5	5	6	26	178	292	66	17	3
Associate of Arts	150	75	85	150	317	328	74	2	1	0
Specialized	50	33	67	60	82	116	126	21	3	0
Not classified	117	45	53	21	22	22	33	1	2	0

[1] Institutions with accreditation at the higher education level as recognized by the U.S. Secretary of Education in 1996.

[2] While "level" and "Carnegie classification" are similar, there is not complete overlap in the two classifications. "Level" refers to the highest level of any degree offered by the institution. The "Carnegie classification" is based on criteria such as institution mission and research funding in addition to highest level of degree awarded. The Carnegie classification was developed by the Carnegie Foundation for the Advancement of Teaching and published in *A Classification of Institutions of Higher Education, 1994 Edition.*

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Integrated Postsecondary Education Data System, "Academic Libraries Survey" (IPEDS-L:1996). (Originally published as table 4B on p. 20 of the complete report from which this article is excerpted.)

The libraries of the 538 doctorate-granting institutions (16 percent of the total institutions) accounted for $2.7 billion, or 63 percent of the total operating expenditure dollars at all college and university libraries.

In FY 96, the median for total operating expenditures per FTE student was $310.22, and the median for information resource expenditures per FTE student was $90.07.

Data source: The NCES 1996 Integrated Postsecondary Education Data System, "Academic Libraries Survey" (IPEDS-L:1996).

For technical information, see the complete report:

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State Library Agencies: Fiscal Year 1998

P. Elaine Kroe

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the State Library Agencies (STLA) Survey.

Introduction

This report contains data on state library agencies in the 50 states and the District of Columbia for state fiscal year (FY) 1998. The data were collected through the State Library Agencies (STLA) Survey, the product of a cooperative effort between the Chief Officers of State Library Agencies (COSLA), the U.S. National Commission on Libraries and Information Science (NCLIS), and the National Center for Education Statistics (NCES). The FY 98 STLA Survey is the fifth in the series.

Background

A state library agency is the official agency of a state charged by state law with the extension and development of public library services throughout the state and having adequate authority under state law to administer state plans in accordance with the provisions of the Library Services and Technology Act (LSTA) (P.L. 104–208). Beyond these two roles, state library agencies vary greatly. They are located in various departments of state government and report to different authorities. They are involved in various ways in the development and operation of electronic information networks. They provide different types of services to different types of libraries.

State library agencies are increasingly receiving broader legislative mandates affecting libraries of all types in the states (i.e., public, academic, school, special, and library systems). State library agencies provide important reference and information services to state governments and administer the state libraries and special operations, such as state archives, libraries for the blind and physically handicapped, and the State Center for the Book. The state library agency may also function as the state's public library at large, providing service to the general public and state government employees. This report provides information on the range of roles played by state library agencies and the various combinations of fiscal, human, and informational resources invested in such work.

Purpose of survey

The purpose of the STLA Survey is to provide state and federal policymakers, researchers, and other interested users with descriptive information about state library agencies. The data collected are useful to (1) chief officers of state library agencies, (2) policymakers in the executive and legislative branches of federal and state governments, (3) government and library administrators at federal, state, and local levels, (4) the American Library Association and its members or customers, and (5) library and public policy researchers. The survey asks each state library agency about the kinds of services it provides, its staffing practices, its collections, income and expenditure data, and more. Decisionmakers use the NCES survey to obtain information about services and fiscal practices.

The STLA Survey collects some data on state library agency services and financial assistance to public, academic, and school libraries and to library systems. When added to the data collected through the NCES surveys of public, academic, school, and federal libraries, and library cooperatives, these data help complete the national picture of library service.

Congressional authorization

The STLA Survey is conducted in compliance with the NCES mission "to collect, analyze, and disseminate statistics and other information related to education in the United States and in other nations, including . . . the learning and teaching environment, including data on libraries . . ." (P.L. 103–382, Title IV, National Education Statistics Act of 1994, Sec. 404 [a]).

Highlights

Governance

Nearly all state library agencies (48 states and the District of Columbia) are located in the executive branch of government. Of these, over 65 percent are part of a larger agency, the most common being the state department of education. In two states, Arizona and Michigan, the agency is located in the legislative branch.

Allied and other special operations

A total of 15 state library agencies reported having one or more allied operations. Allied operations most frequently linked with a state library agency are the state archives

(10 states) and the state records management service (10 states). Seventeen state library agencies contract with public or academic libraries in their states to serve as resource or reference/information service centers. Eighteen state library agencies host or provide funding for a State Center for the Book.[1]

Electronic services and information

Internet access. All state library agencies facilitate library access to the Internet in one or more of the following ways: training or consulting library staff in the use of the Internet; providing a subsidy for Internet participation; providing equipment to access the Internet; providing access to directories, databases, or online catalogs; and managing gopher/Web sites, file servers, bulletin boards, or listservs. Forty-six state library agencies have Internet terminals available for public use, ranging in number from 2 to 4 (15 states); 5 to 9 (13 states); 10 to 19 (8 states); 20 to 29 (7 states); and 30 or more (3 states). Michigan reported the largest number of public-use Internet terminals (41). Thirty-four state library agencies were applicants to the Universal Service (E-rate discount) Program established by the Federal Communications Commission (FCC) under the Telecommunications Act of 1996 (P.L. 104–104).[2]

Electronic networks, databases, and catalogs. All state library agencies plan or monitor electronic network development; 45 states and the District of Columbia operate such networks; and 44 states and the District of Columbia develop network content.[3] Forty-four state library agencies provide or facilitate library access to online databases through subscription, lease, license, consortial membership, or agreement. Almost all state library agencies facilitate or subsidize electronic access to the holdings of other libraries in their state, most frequently through Online Computer Library Center (OCLC) participation (42 states and the District of Columbia). Over half provide access via a Web-based union catalog (30 states) or Telnet gateway (27 states).

Library development services

Services to public libraries. Every state library agency provides the following types of services to public libraries: administration of Library Services and Technology Act (LSTA) grants, collection of library statistics, and library planning, evaluation, and research. Nearly every state library agency provides consulting services and continuing education programs. Services to public libraries provided by at least three-quarters of state agencies include administration of state aid, interlibrary loan referral services, library legislation preparation or review, literacy program support, reference referral services, state standards or guidelines, summer reading program support, union list development, and review of technology plans for the Universal Service (E-rate discount) Program. Over three-fifths of state agencies provide OCLC Group Access Capability (GAC) to public libraries and statewide public relations or library promotion campaigns. Less common services to public libraries include accreditation of libraries, certification of librarians, cooperative purchasing of library materials, preservation/conservation services, and retrospective conversion of bibliographic records.

Services to academic libraries. At least two-thirds of state library agencies provide the following services to the academic library sector: administration of LSTA grants, continuing education, interlibrary loan referral services, and reference referral services. Less common services to academic libraries include cooperative purchasing of library materials, literacy program support, preservation/conservation, retrospective conversion, and state standards or guidelines. No state library agency accredits academic libraries; only Washington State certifies academic librarians.

Services to school library media centers. At least two-thirds of state library agencies provide the following services to school library media centers (LMCs): administration of LSTA grants, continuing education, interlibrary loan referral services, and reference referral services. Services to LMCs provided by at least half of all state agencies include consulting services and union list development. Less common services to LMCs include administration of state aid, cooperative purchasing of library materials, retrospective conversion, and Universal Service (E-rate discount) Program review. No state library agency accredits LMCs or certifies LMC librarians.

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[1] The State Center for the Book, which is part of the Center for the Book program sponsored by the Library of Congress, promotes books, reading, and literacy, and is hosted or funded by the state.

[2] Under this program, the FCC promotes affordable access to the Internet and the availability of Internet services to the public, with special attention given to schools and libraries.

[3] Network content refers to database development. Database development activities may include the creation of new databases or the conversion of existing databases into electronic format. These activities may involve bibliographic databases as well as full text or data files.

Services to special libraries. Over two-thirds of state library agencies serve special libraries[4] through administration of LSTA grants, consulting services, continuing education, interlibrary loan referral, reference referral, and union list development. Less common services to special libraries include administration of state aid, cooperative purchasing of library materials, and summer reading program support. Only Nebraska accredits special libraries, and only Indiana and Washington State certify librarians of special libraries.

Services to systems. At least three-fifths of state library agencies serve library systems[5] through administration of LSTA grants, consulting services, continuing education, interlibrary loan referral, library legislation preparation or review, and library planning, evaluation, and research. Accreditation of library systems is provided by only six states and certification of systems librarians by only five states.

Service outlets

State library agencies reported a total of 152 service outlets—72 main or central outlets, 71 other outlets (excluding bookmobiles), and 9 bookmobiles.

Collections

The number of books and serial volumes held by state library agencies totaled 22.0 million, with New York accounting for the largest collection (2.4 million). Five state agencies had book and serial volumes of over one million. In other states, collections ranged from 500,000 to one million (11 states); 200,000 to 499,999 (12 states); 100,000 to 199,999 (8 states); 50,000 to 99,999 (7 states); and under 50,000 (6 states). The state library agency in Maryland does not maintain a collection, and the District of Columbia does not maintain a collection in its function as a state library agency.[6]

The number of serial subscriptions held by state library agencies totaled over 82,000, with New York holding the largest number (over 12,100). Ten state library agencies reported serial subscriptions of over 2,000. In other states, these collections ranged from 1,000 to 1,999 (7 states), 500 to 999 (16 states), 100 to 499 (13 states), and under 100 (2 states). The state library agencies in Maryland and the District of Columbia do not maintain collections, and Indiana does not maintain statistics on this item.

Staff

The total number of budgeted full-time-equivalent (FTE) positions in state library agencies was 3,766. Librarians with American Library Association-Master of Library Science (ALA-MLS) degrees accounted for 1,206 of these positions, or 32.0 percent of total FTE positions. Rhode Island reported the largest percentage (57.1 percent) of ALA-MLS librarians, and Virginia reported the smallest (16.3 percent).

Income

State library agencies reported a total income of $886.2 million in FY 98 (81.3 percent from state sources, 16.7 percent from federal sources, and 2.0 percent from other sources).[7] Of state library agency income received from state sources, over $509 million (70.7 percent) was designated for state aid to libraries. In 11 states, over 75 percent of income from state sources was set aside for state aid. In Georgia, the largest percentage of state library agency income from state sources was set aside for state aid (97.3 percent). Six states (Hawaii, Iowa, New Hampshire, South Dakota, Vermont, and Wyoming) and the District of Columbia targeted no state funds for aid to libraries; instead, 95 to 100 percent of their state funds were set aside for state library agency operations.[8]

Expenditures

State library agencies reported total expenditures of $863.5 million. The largest percentage (84.0 percent) was from state funds, followed by federal funds (14.4 percent) and other funds (1.6 percent). In five states, over 90 percent of total expenditures were from state sources. These states were Georgia (94.0 percent), Massachusetts (93.4 percent), New York (92.3 percent), West Virginia (90.7 percent), and Maryland (90.4 percent). The District of Columbia had the smallest percentage of expenditures from state sources (36.7 percent), followed by Wyoming (52.2 percent).

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[4] A special library is a library in a business firm, professional association, government agency, or other organized group; a library that is maintained by a parent organization to serve a specialized clientele; or an independent library that may provide materials or services, or both, to the public, a segment of the public, or other libraries. Scope of collections and services are limited to the subject interests of the host or parent institution. Special libraries include libraries in state institutions.

[5] A system is a group of autonomous libraries joined together by formal or informal agreements to perform various services cooperatively, such as resource sharing or communications. Systems include multitype library systems and public library systems, but not multiple outlets under the same administration.

[6] In Maryland, Enoch Pratt Central, the central library of the Enoch Pratt Free Library, is designated by state law as the State Library Resource Center. In the District of Columbia, the Martin Luther King Memorial Library, the central library of the District of Columbia Public Library, functions as a resource center for the municipal government.

[7] Federal income includes State Program grant awards under the Library Services and Technology Act (LSTA) (P.L. 104–208); remaining income reported for Title II of the Library Services and Construction Act (LSCA) (P.L. 101–254); in Arizona, the LSCA Title I award for FY92 (the award was not available earlier due to litigation); and other federal income. Note: LSCA was superseded by LSTA, but some LSCA funds are still unspent.

[8] The District of Columbia Public Library functions as a state library agency and is eligible for federal LSTA funds in this capacity. The state library agency in Hawaii is associated with the Hawaii State Public Library System and operates all public libraries within its jurisdiction. The state funds for aid to libraries for these two agencies are reported on the NCES Public Libraries Survey, rather than on the STLA survey, because of the unique situation of these two state agencies and in order to eliminate duplicative reporting of these data.

Financial assistance to libraries accounted for 69.0 percent of total state library expenditures, with the largest percentages expended on individual public libraries (55.2 percent) and public library systems (15.9 percent). Most of the expenditures for financial assistance to libraries were from state sources (88.0 percent), while 11.8 percent were from federal sources.

Library Services and Technology Act (LSTA) expenditures accounted for 84.1 percent of total federal expenditures. The largest percentage of LSTA expenditures was distributed as grants to libraries (57.3 percent). Funds expended directly by the state library agencies on statewide services accounted for 40.5 percent of LSTA expenditures.

Fourteen state library agencies reported expenditures for allied operations. These expenditures totaled over $23.1 million and represented 2.7 percent of total expenditures by state library agencies. Of states reporting such expenditures, Virginia had the highest expenditure ($3.8 million) and Kansas the lowest ($110,000).[9]

Twenty-nine state library agencies reported a total of almost $19.0 million in grants and contracts expenditures to assist public libraries with state education reform initiatives or the National Education Goals. The area of lifelong learning accounted for the largest proportion of such expenditures (43.3 percent), followed by the areas of adult literacy (29.8 percent) and readiness for school (26.9 percent). Such expenditures were focused exclusively on readiness for school projects in five states (Louisiana, Nebraska, Oregon, Tennessee, and Utah); on adult literacy in three states (New Hampshire, New Jersey, and Oklahoma); and on lifelong learning in two states (Colorado and Massachusetts).

Data source: NCES State Library Agencies (STLA) Survey, Fiscal Year 1998.

For technical information, see the complete report:

Kroe, P.E. (2000). *State Library Agencies: Fiscal Year 1998* (NCES 2000–318).

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To obtain the complete report (NCES 2000–318), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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[9] Although Alaska reported allied operations, the expenditures for such operations are not from the state library agency budget.

INTERNATIONAL STATISTICS

International Education Indicators: A Time Series Perspective: 1985–1995
Stephane Baldi, George Khalaf, Marianne Perie, and Joel D. Sherman 137

International Education Indicators: A Time Series Perspective: 1985–1995

Stephane Baldi, George Khalaf, Marianne Perie, and Joel D. Sherman

This article was excerpted from the Introduction and Executive Summary of the report of the same name. The data are primarily from the Organization for Economic Co-operation and Development (OECD) Education Database, but also from other OECD sources and the U.S. Bureau of the Census International Database.

Introduction

International Education Indicators: A Time Series Perspective: 1985–1995 compares educational trends in economically developed countries over time. The countries examined in this report are members of the Organization for Economic Co-operation and Development (OECD), an organization of 29 countries dedicated to promoting economic growth and development around the world.

This report extends the earlier National Center for Education Statistics (NCES) publication *International Education Indicators: A Time Series Perspective* (Perie et al. 1997) from a 7- to an 11-year time series to provide a more comprehensive picture of continuity and change in countries' education systems. The 11 years included in this report were a period of rapid social, political, and economic changes for many OECD countries. These years also saw renewed interest in the issues of educational standards and finance reform.

This report presents 18 indicators that each give a broad picture of an education issue, allowing for comparisons to be made both among countries and over time. Each indicator contains findings summarized in textual, graphical, and tabular formats. The indicators permit us to assess how well the United States has met some of the educational challenges of the past decade and to compare developments here with those in other developed countries. These indicators also should aid policymakers in determining what changes, relative to other countries, have been made in the education system in the United States during this period of intense reform.

Preceding the indicators is an essay that provides a broad comparison of 1985–1995 educational trends across OECD countries, with specific emphasis on how the United States compares with other countries, especially other "Group of Seven" (G-7) countries. (The G-7 countries are Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.)

Highlights

The period 1985–1995 witnessed increases in the rates of enrollment in secondary and higher education in virtually every OECD country. Among G-7 countries in 1995, the United States had the fourth highest enrollment rate of 14- to 17-year-olds at the lower and upper secondary level, and the second highest enrollment rate of 18- to 29-year-olds in higher education.

An increasing percentage of students in many countries received their primary and secondary education from private schools between 1985 and 1995, although this was not the case in the United States. There was also a slight decrease in the percentage of students enrolled in private higher education during this period.

Public direct expenditures on education as a percentage of Gross Domestic Product (GDP) remained fairly stable across OECD countries between 1985 and 1994. In the United States, expenditures as a percentage of GDP rose slightly at the primary level, remained stable at the secondary level, and declined slightly at the higher education level.

First university degree graduation ratios[1] increased in most OECD countries between 1985 and 1995. In 1995, the United States had the lowest high school graduation ratio[2] of any G-7 country, but the highest first university degree graduation ratio. Furthermore, the gender gap in first university degree graduation ratios reversed between 1985 and 1995, so that by the middle of the 1990s, graduation ratios for women surpassed those of men in most OECD countries.

The percentage of first university degrees awarded in science increased or remained stable in the majority of OECD countries reporting data between 1985 and 1995. The most notable exception to this trend was the United States, where the percentage of science degrees dropped by 5 percentage points, placing it last among G-7 nations, but only slightly lower than Canada.

Reflecting the overall trends in enrollments and graduation ratios, the educational attainment of adults ages 25–64 increased in most OECD countries. In 1995, the United States continued to have a greater percentage of adults with at least a university education than any other G-7 country.

In 1995, university graduates in the United States had a 74 percent earnings advantage over high school graduates, one of the highest earnings advantages reported by OECD countries.

Reference

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Data sources:

Organization for Economic Co-operation and Development (OECD): Education Database, 1998; Network B Database, 1998; *OECD in Figures: 1997; Labour Force Statistics: 1976–1997; Annual National Accounts*, vol. 1, 1997; and *Education at a Glance: 1995–1997.*

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For technical information, see the complete report:

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[1] The first university degree graduation ratio is the number of students receiving a first university degree in a given year per 100 persons in the population who are at the typical graduation age. The typical graduation age for first university degrees is 22 in the United States and ranges from 21 to 26 across OECD countries.

[2] This ratio is the number of students graduating from upper secondary school in a given year per 100 persons in the population who are at the typical age for completion of upper secondary education. The typical upper secondary completion age is 17 in the United States and ranges from 17 to 20 across the OECD countries.

CROSSCUTTING STATISTICS

Vocational Education in the United States: Toward the Year 2000
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Vocational Education in the United States: Toward the Year 2000

Karen Levesque, Doug Lauen, Peter Teitelbaum, Martha Alt, and Sally Librera

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from many government sources, which are listed at the end of this article.

Introduction

With the advent of the 21st century, vocational education in the United States is in transition. Historically, the purpose of vocational education has been to prepare students for entry-level jobs in occupations requiring less than a baccalaureate degree. Over the last 15 years, however, this purpose has shifted toward broader preparation that develops the academic, vocational, and technical skills of students in vocational education programs. This preparation involves integrating academic and vocational education, emphasizing all aspects of an industry, and implementing academic performance measures, among other reform efforts. Vocational education policy now also encourages high school students to continue their studies at the postsecondary level, and 2-year postsecondary students to pursue 4-year credentials, through various arrangements for secondary-postsecondary articulation or "tech prep."[1] The traditional focus of vocational education is giving way to a broader purpose—one that includes greater emphasis on academic preparation and provides a wider range of career choices.

Vocational Education in the United States: Toward the Year 2000 attempts to capture this evolving enterprise. In addition to describing trends in participation in secondary and postsecondary vocational education, the report also presents findings about the academic preparation of high school students who participate in vocational education, relevant school reform efforts, and transitions after high school. However, the surveys available for assessing the status of vocational education were generally designed to capture more traditional conceptions of the enterprise and often do not provide information on the most current reform efforts. Nevertheless, the available data do signal that change is occurring in the directions advocated by reform efforts, although such change is often small and preliminary. The report also describes economic and labor market trends and their implications for vocational programs, as well as changing workplace practices and employer perspectives on worker skills and proficiency. The most important findings presented in the report are highlighted below.

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[1] A tech prep program typically combines (or "articulates") the last 2 years of high school and the first 2 years of postsecondary vocational education into a 4-year program that incorporates core academic standards and leads to an associate's degree or certificate in a specific career field.

The Context

Economic trends

The United States is shifting from a manufacturing-based economy to one that overwhelmingly provides services and information. These trends have two important implications for vocational education programs. They signal an ongoing shift in the education and training fields that are required of the U.S. workforce as well as shifts in the levels of that education and training. Vocational programs that prepare students for manufacturing jobs include trade and industry programs, such as construction, mechanics and repair, precision production, and transportation and material moving. Vocational programs that prepare students for jobs in the services and information industries include health care programs and technology and communications programs, among others.

Changing education and skill requirements

Generally, the research literature describes a trend toward greater education and training requirements and a greater need for critical thinking, personal responsibility, and social skills among workforce participants. For example, recent projections anticipate that average growth will be greater for occupations requiring at least an associate's degree than for occupations requiring less education. However, these trends are not uniform across industries and occupations, and some disagree about their magnitude. Some emerging occupations require high education and training requirements (such as a bachelor's degree or moderate- to long-term on-the-job training), while many jobs still demand relatively low education and training levels. In 1996, 39 percent of all jobs required no more than short-term on-the-job training.

Understanding these economic and labor market trends provides a context for analyzing trends in vocational education. For example, if participation in vocational programs parallels changes in the economy, one would expect to see a decline in enrollments in trade and industry programs in recent years and an increase in enrollments in service- and information-related programs. Similarly, if vocational education reflects the labor market trend toward greater education and training requirements, one would expect to find that the academic preparation of students participating in vocational education has increased in recent years and that more of these participants are seeking and obtaining higher education and training credentials.

Employer Perspectives[2]

Workplace practices

Changes in the economy and in education are altering workplace practices, which have implications for the skills required of employees. Increased global competition has spurred some U.S. businesses to create "high-performance workplaces," relying on flexible and decentralized work practices and multiskilled workers. These firms, however, are still in the minority. For example, 20 percent of surveyed employers reported engaging in performance benchmarking in 1997, and 25 percent had undergone reengineering. Larger firms were more likely than smaller firms to report these practices, indicating that the percentage of employees affected by these practices may be greater than the percentage of employers reporting them.

Also, the 1994 School-to-Work Opportunities Act advocated employer involvement in school-to-work partnerships and wider implementation of work-based learning, including job shadowing, mentoring, internships, and apprenticeships. Once again, however, a minority of firms reported participating in these activities. In 1997, one-quarter of surveyed employers reported participating in a school-to-work partnership, and 42 percent reported providing at least one formal work-based learning activity. As above, larger firms were more likely than smaller firms to report these different practices.

Perspectives on employees

While the general labor market trend may be toward higher education and training requirements, employers have a unique perspective, which is particularly important in the short term. When hiring frontline workers from an established applicant pool, surveyed employers did not rate years of completed schooling or academic performance as highly as attitude and communication skills. However, it may be that years of completed schooling and academic performance are more important during initial applicant screening. It may also be that employers have historically found that schooling measures are not reliable indicators of what students know and can do.

With the evolving economy and changes in education and skill requirements, attention over the last 2 decades has focused on whether employees are adequately prepared for the demands of the workplace. According to most surveyed employers, the proficiency of their production workers either stayed the same or increased in recent years.[3] In addition, the majority of employers with new production employees who participated in work-based learning reported that these employees were superior to comparable new hires in terms of productivity and attitude. Virtually no employers reported that employees with work-based learning experience were inferior in these two respects to comparable new hires.[4]

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[2]The findings in this section come from the 1994 and 1997 National Employer Surveys, which gathered data from a random sample of private firms with 20 or more employees.

Trends in Secondary Vocational Education[5]

Participation in high school vocational education

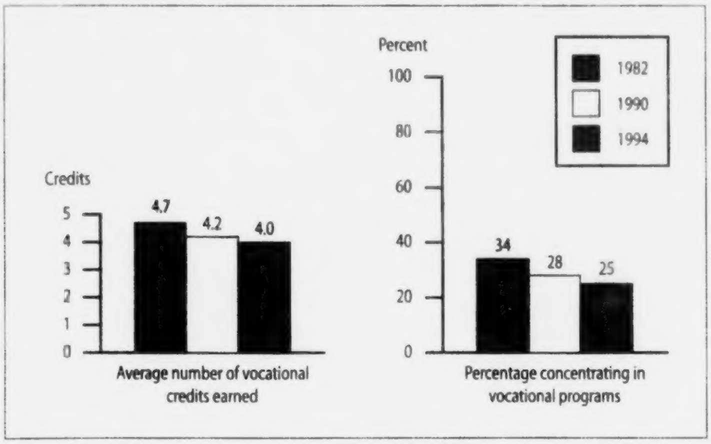
From 1982 to 1994, there was a general decline in the participation of high school students in vocational education (figure A). The average number of vocational credits public high school graduates earned decreased over the period studied, as did the percentage of graduates completing a sequence of related occupational courses.[6]

Trade and industry programs and business programs were the most popular occupational programs in 1994—about 8 percent of public high school graduates concentrated in each of these two areas. These were also the most popular programs in earlier years. However, consistent with reported economic trends, the percentage of graduates concentrating in trade and industry declined over the period studied, as did the percentage of graduates concentrating in business. (In 1982, about 15 percent of graduates had concentrated in trade and industry, and 12 percent in business.) Exhibiting an opposite trend, the proportions of students concentrating in health care and in technology and communications almost doubled from 1982 to 1994. Nevertheless, the percentages of high school graduates concentrating in these program areas in 1994 were still quite small (about 1 percent each).

Characteristics of high school students participating in vocational education

Although participation in vocational education declined for most groups of public high school students between 1982

Figure A.—Average number of vocational credits earned by public high school graduates and percentage of public high school graduates concentrating (accumulating 3 or more credits) in vocational programs: 1982, 1990, and 1994



SOURCE: U.S. Department of Education, National Center for Education Statistics: High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:1980/1992), "High School Transcript Study"; and National Assessment of Educational Progress (NAEP) 1990 and 1994 High School Transcript Studies.

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[3] Employer-provided training, which also increased over this time period, may have contributed to proficiency gains. Alternatively, education reform efforts over the last decade may have contributed to the improvement in worker proficiency. In either case, it is impossible to establish a causal link from the available data.

[4] However, in a rigorous evaluation of the benefits of work-based learning, it would be necessary to compare all work-based learning participants, not just those who were hired, with other comparable workers. It may be, for example, that those work-based learning participants who were hired had better recommendations or references than those who were not.

[5] Unless otherwise noted, trends in this section come from an analysis of transcripts for public high school graduates in 1982, 1990, and 1994. In addition to the topics described in this section, chapter IV of the complete report also presents findings on academic achievement gains, work experience and work-based learning, technology literacy, and teacher professional development activities.

[6] These decreases may be partly due to increases in high school graduation requirements implemented by many states after the publication of *A Nation at Risk* (National Commission on Excellence in Education 1983). Because students have been required to take more academic coursework, they may have elected to take fewer vocational courses. Alternatively, because of fiscal or economic pressures, or both, schools may have reduced their vocational offerings in recent years.

and 1994, there were a few exceptions to this trend. The percentages of black, non-Hispanic students and Asian/Pacific Islander students concentrating in vocational education stayed about the same over this period, and the concentration rate of students with disabilities increased. The increase in participation of students with disabilities is consistent with the emphasis of the 1990 Perkins Act on serving students with special needs.

Academic course-taking trends

The academic preparation of high school students participating in vocational education increased between 1982 and 1994, in both absolute and relative terms (figure B). While public high school graduates generally increased their coursetaking in the core academic subjects (English, mathematics, science, and social studies), the rate of increase was greater for vocational concentrators than for either college preparatory students or those completing general coursework in high school. Vocational concentrators also generally increased the rigor of their academic coursework, particularly in mathematics, science, and social studies. However, in 1994, vocational concentrators still completed fewer total credits in each of the core academic subjects than did either college preparatory students or those completing general coursework in high school.

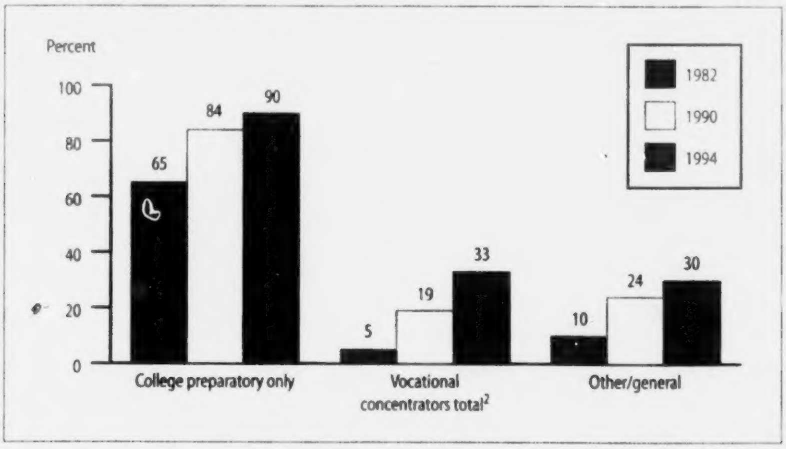
School reform efforts[7]

By 1997, some public comprehensive high schools had implemented vocational education–related reforms, although the quality and specific forms of these efforts were not discernible from the available survey data. About half of these schools reported integrating academic and vocational education, and a similar proportion reported offering tech prep. Fewer schools reported having block scheduling, career majors, school-based enterprises, skill standards, or skill or occupational certificates. Generally, schools with career academies and larger schools were more likely to report these reforms, while rural schools were less likely to do so.

Vocational teacher qualifications and experience[8]

Vocational and academic high school teachers were similar in a number of ways: about the same proportions held bachelor's degrees, and similar percentages held either standard or advanced certification. However, about 8

Figure B.—Percentage of public high school graduates meeting the New Basics core academic standards,[1] by curriculum specialization in high school: 1982, 1990, and 1994



[1] The New Basics core academic standards include 4 years of English and 3 years of mathematics, science, and social studies.

[2] Includes students who completed both a vocational concentration and a college preparatory curriculum.

SOURCE: U.S. Department of Education, National Center for Education Statistics: High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B–So:1980/1992), "High School Transcript Study"; and National Assessment of Educational Progress (NAEP) 1990 and 1994 High School Transcript Studies.

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[7] The findings in this section come from the National Longitudinal Study of Youth of 1997, which provides information on public schools with a 12th grade. Unfortunately, schools classified by their districts as primarily "vocational" were excluded from the sample. Consequently, the survey generally describes public comprehensive high schools and, therefore, may provide a conservative estimate of local reform efforts.

[8] The findings in this section come from the Schools and Staffing Surveys (SASS) of 1991 and 1994.

percent of vocational teachers had less than a bachelor's degree, in comparison with less than 1 percent of academic teachers.[9] Also, vocational teachers were generally older than academic teachers, which may be due to the fact that vocational teachers entered the teaching profession at an older age, possibly after obtaining industry experience. There were some variations among vocational teachers who taught in different program areas and school settings. For example, trade and industry and technical teachers and those teaching in more than one vocational field were generally less likely than other vocational teachers to have a bachelor's or advanced degree.

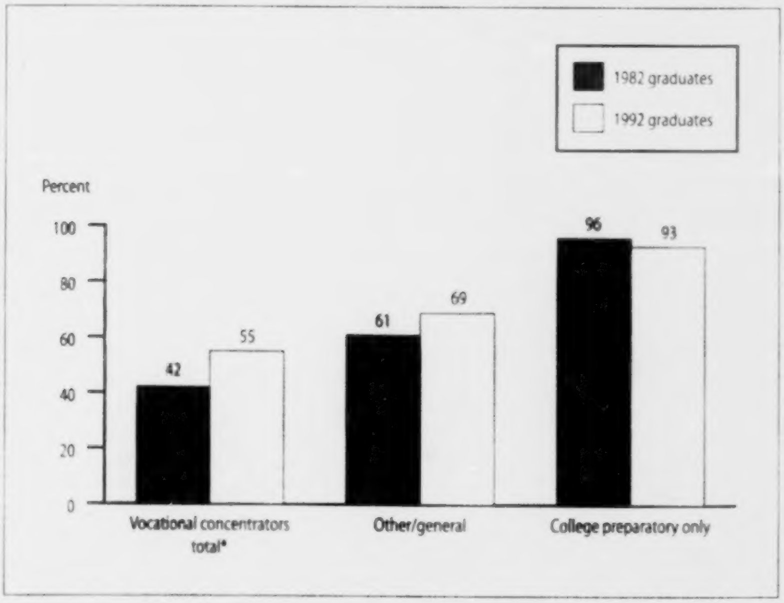
Transitions After High School[10]

The transition to postsecondary education: 2 years after high school

The postsecondary enrollment rates of public high school graduates showed a marked increase between 1982 and 1992. About half of those students graduating in 1982 enrolled in a postsecondary institution within 2 years, while about three-fourths of the more recent graduating class enrolled within 2 years. Between 1982 and 1992, postsecondary enrollment rates increased for vocational concentrators and students completing general coursework in high school, but not for college preparatory graduates (figure C). While the gap in enrollment rates among the three groups of students appeared to be narrowing, 1992 vocational concentrators were still less likely than their college preparatory peers and those completing general coursework in high school to enroll in a postsecondary institution within 2 years. However, vocational concentrators who also completed a college preparatory curriculum had enrollment outcomes that were more like those of their college preparatory peers than did strictly vocational concentrators.

Vocational concentrators were more likely than students completing general coursework in high school to obtain a degree or certificate within 2 years, despite the fact that the two groups enrolled at similar rates in community colleges and that vocational concentrators were more likely to be employed while in school.

Figure C.—Percentage of 1982 and 1992 public high school graduates enrolling in postsecondary institutions by 1984 and 1994, respectively, by curriculum specialization in high school



*Includes students who completed both a vocational concentration and a college preparatory curriculum.

SOURCE: U.S. Department of Education, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:1980/1992), "High School Transcript Study"; and National Education Longitudinal Study of 1988 Eighth-Graders, "Third Follow-up" (NELS:1988/1994) and "High School Transcript Study" (NELS:1992).

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[9] Academic teachers were more likely than vocational teachers to have a master's or doctorate/first-professional degree.

[10] Two data sets were used for the analysis in this section: the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:1980/1984), for 1982 public high school graduates, and the National Education Longitudinal Study of 1988 Eighth Graders (NELS:1988/1994), for 1992 public high school graduates. In addition to the topics described in this section, chapter V of the complete report also presents findings on postsecondary remedial coursework.

The transition to postsecondary education: 10 years after high school

Among 1982 graduates, vocational concentrators were less likely than either their college preparatory peers or students completing general coursework in high school to enroll in postsecondary education by 1992. However, vocational concentrators who also completed a college preparatory curriculum were about as likely as college preparatory graduates to enroll during this 10-year period.

Postsecondary completion 10 years after high school

More than half of 1982 public high school graduates who enrolled in postsecondary education completed a degree or certificate by 1992. Vocational concentrators had lower overall rates of postsecondary completion than their peers. However, vocational concentrators who also completed a college preparatory curriculum were as likely as college preparatory graduates to earn a postsecondary degree or certificate during this period. Among graduates who enrolled in postsecondary education by 1992, vocational concentrators were less likely than their peers to earn a bachelor's degree, but more likely to obtain a certificate or an associate's degree.

Labor market outcomes 2 years after high school

Labor market outcomes 2 years after leaving high school were similar for the graduating classes of 1982 and 1992. In both cases, about three out of four public high school graduates were in the labor force. Vocational concentrators in both graduating classes were more likely than their college preparatory peers to be in the labor force 2 years after graduation. While 1992 public high school graduates had similar labor market experiences regardless of their course of study in high school, 1982 college preparatory graduates tended to have lower unemployment rates than vocational concentrators and those completing general coursework in high school. This difference between the two graduating classes may be due to shifts over the decade in economic conditions, changes in the academic preparation of high school graduates, or other factors.

Labor market outcomes 10 years after high school

Vocational concentrators and students completing general coursework in high school had similar labor market outcomes 10 years after graduation from high school. While the number of months employed and unemployed was similar regardless of students' course of study in high school, college preparatory graduates tended to enjoy higher earnings in 1991 than their peers, possibly because of their greater postsecondary attainment. Obtaining a bachelor's degree was generally associated with increased earnings and lower unemployment rates. At the other end of the educational spectrum, students who earned a postsecondary certificate had similar annual earnings and unemployment rates as their peers who did not complete a postsecondary degree or certificate. Both those who held a postsecondary certificate and those who held a high school diploma earned less and were more likely to be unemployed in 1991 than graduates who held an associate's degree or higher.

Trends in Postsecondary Vocational Education[11]

Trends in educational attainment

The United States has experienced both greater educational participation and higher attainment in recent years, continuing long-standing patterns. More people are attending postsecondary institutions than ever before, and the average educational attainment of the adult population has been steadily rising. While the total number of adults who earned vocational associate's degrees appeared to increase slightly between 1992 and 1996, this difference was not statistically significant. However, the total number of adults who held academic associate's degrees increased over the 4 years by approximately an additional 1 million people.[12]

Although postsecondary enrollments overall have shown recent increases, there is no evidence that bachelor's degree holders are returning in large numbers for additional undergraduate schooling, as some have speculated. In particular, small proportions of students who were pursuing associate's degrees or certificates had already earned a bachelor's or advanced degree. The vast majority of students who enroll in postsecondary education are pursuing a higher level credential than the one they currently possess. However, this report focused on students who participate in for-credit postsecondary programs. It may be that a significant number of bachelor's degree holders are taking noncredit, adult, or continuing education courses.

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[11] Unless otherwise noted, the findings in this section come from the 1989–90 and 1995–96 National Postsecondary Student Aid Study (NPSAS). Because recent postsecondary transcript data were not available, the information on trends at the postsecondary level is generally less detailed than that at the secondary level. Specifically, it was not possible to examine actual course-taking patterns in this section. Instead, the analysis relied primarily on self-reported degrees and majors. In addition to the topics described in this section, chapter VI of the complete report also presents findings on work experience while enrolled, licensure, and labor market participation.

[12] The findings presented in this paragraph come from the U.S. Census Bureau's 1992 and 1996 October Current Population Surveys.

Participation in postsecondary vocational education

Vocational coursework represents a substantial component of sub-baccalaureate students' education. Among all sub-baccalaureate students, about one-half majored in a vocational program area in 1996; the proportion decreased from 54 to 49 percent over the 6 years from 1990 to 1996.[11] There was an increase between 1990 and 1996 in the proportion of postsecondary vocational students being served by community colleges, with a corresponding decrease at private proprietary institutions (figure D).

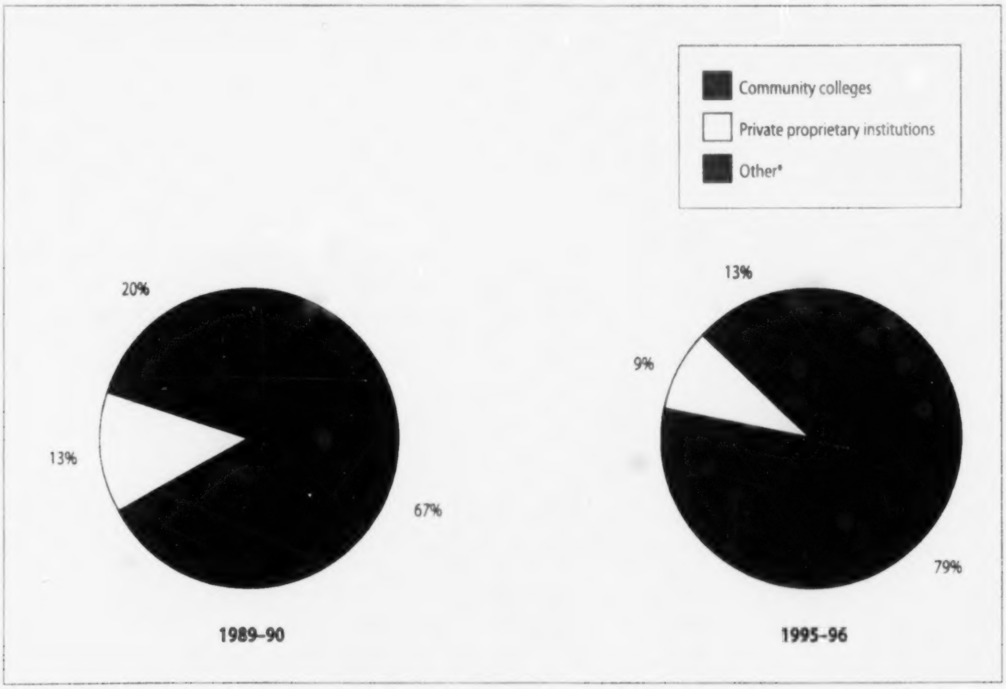
Sub-baccalaureate student characteristics

Sub-baccalaureate students with vocational majors were more likely to be older, to have family responsibilities, to receive financial aid, to have a previous postsecondary degree or certificate, and to report higher postsecondary grade-point averages (GPAs) than their academic counterparts. These students with vocational majors also tended to have parents with lower educational attainment: as the education level of their parents increased, students' likelihood of reporting a vocational major generally decreased. Differences by race/ethnicity among sub-baccalaureate students in their probability of having a vocational major were either minimal or not statistically significant. Also, among sub-baccalaureate students, there was no clear association between majoring in a vocational field and disability status.

Specific occupational preparation

Business, health, and technical fields (the latter including engineering/science technologies, computers/data processing, and protective services) accounted for large numbers of vocational students' majors. However, between 1990 and 1996, there were small decreases in the proportions of sub-baccalaureate students reporting majors in business, marketing, computers/data processing, and engineering/science technologies. Thus, the absolute level of participation in service- and information-related programs was

Figure D.—Percentage distribution of sub-baccalaureate students reporting a vocational major according to type of postsecondary institution: 1989–90 and 1995–96



*Other institution types include public 4-year; private, not-for-profit 4-year; private, not-for-profit less-than-4-year; and public vocational/technical institutions.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990 and NPSAS:1996).

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[11] There were substantial amounts of missing data on student's major field in both NPSAS surveys. About 24 percent of sub-baccalaureate students in 1990 and 28 percent in 1996 did not report their major field.

relatively high in 1996, while the trend in these areas was generally downward over the 6-year period.

Among sub-baccalaureate students, gender gaps persisted in the fields of business, health, and "other vocational" fields (where women predominated), as well as in trade and industry, protective services, computers/data processing, and engineering/science technologies (where men predominated). A particularly large gap between the participation of men and women occurred in 1996 in engineering/science technologies, a field in which 12 percent of male students and only 2 percent of female students declared a major.

Postsecondary completion

Among the group of students who first began their postsecondary studies in 1989–90, those with academic majors were more likely than those with vocational majors to have completed at least one postsecondary credential 4 years later. However, a majority of both academic and vocational majors completed some type of degree or certificate within 4 years.

Conclusion

This report describes vocational education at the turn of the century as an enterprise in transition. The available data signal that change is occurring in the directions advocated by recent reform efforts, in particular, improved academic preparation and greater postsecondary participation. Evidence of change includes findings that the academic preparation of public high school students participating in vocational education increased between 1982 and 1994; about half of public comprehensive high schools reported integrating academic and vocational education in 1997, and a similar proportion reported offering tech prep; and from 1982 to 1992, postsecondary enrollment rates within 2 years of public high school graduation increased significantly for vocational concentrators.

There is mixed evidence that trends in participation in vocational programs reflect economic shifts away from manufacturing toward services and information industries. For example, at the high school level, the percentage of graduates who concentrated in trade and industry declined between 1982 and 1994, and the proportions of students who concentrated in health care and in technology and communications increased over the period. However, the percentages of high school graduates who concentrated in health care and in technology and communications were still quite small in 1994 (about 1 percent each). At the postsecondary level, for example, health and engineering/science technologies were popular vocational majors in 1996. However, there were small decreases between 1990 and 1996 in the proportions of sub-baccalaureate students reporting majors in computers/data processing and in engineering/science technologies. Thus, data on trends in and levels of participation in health and technology programs provided conflicting information about whether vocational program participation is paralleling the economic shift toward services and information industries.

Reference

National Commission on Excellence in Education. (1983). *A Nation at Risk: The Imperative for Educational Reform.* Washington, DC: Author.

Data sources:

NCES: High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:1980/1992); National Assessment of Educational Progress (NAEP) 1990 and 1994 High School Transcript Studies; National Education Longitudinal Study of 1988 Eighth-Graders (NELS:1988/1994); 1989–90 and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990 and NPSAS:1996); Schools and Staffing Survey (SASS), 1990–91 and 1993–94; and 1990 Beginning Postsecondary Students Longitudinal Study (BPS:1990/1994).

U.S. Department of Commerce, Bureau of the Census: Current Population Survey (CPS), March 1970–95, and October 1990–96 (selected years); and National Employer Survey, Phase 1 (1994) and Phase II (1997).

U.S. Department of Labor, Bureau of Labor Statistics: National Longitudinal Survey of Youth of 1997 (NLSY97); and the *Monthly Labor Review* (November 1997) article Occupational Employment Projections to 2006.

For technical information, see the complete report:

Levesque, K., Lauen, D., Teitelbaum, P., Alt, M., and Librera, S. (2000). *Vocational Education in the United States: Toward the Year 2000* (NCES 2000–029).

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Occupational Programs and the Use of Skill Competencies at the Secondary and Postsecondary Levels: 1999

Basmat Parsad and Elizabeth Farris

This article was excerpted from the Introduction and Selected Findings of the E.D. Tabs report of the same name. The sample survey data are from two NCES surveys on occupational programs, conducted through the Fast Response Survey System (FRSS) and the Postsecondary Education Quick Information System (PEQIS).

Introduction

This report presents part of the data collected from two National Center for Education Statistics (NCES) surveys conducted in spring 1999: "Survey on Vocational Programs in Secondary Schools" and "Survey on Occupational Programs in Postsecondary Education Institutions." Requested by the U.S. Department of Education's Office of Vocational and Adult Education (OVAE), these surveys provide national estimates on occupational program activities at public secondary schools and less-than-4-year postsecondary institutions.

Background

The surveys were conducted in response to increasing national concern over the gap between existing workforce skills and expanding workplace demands. That concern was triggered by the "workforce crisis" described in *America's Choice: High Skills or Low Wages?* (Commission on the Skills of the American Workforce 1990). It was also spurred by the recognition that with changing technology and work organizations, schools need to do more to equip students with the more sophisticated and higher level skills that today's workplace requires (Grubb 1995). These concerns have set in motion a growing demand for clearer and higher standards in occupational education, and increased industry input in the development of those standards (Lankard 1995).

The push for standards and accountability in occupational education has also been intensified by several policy initiatives over the past decade. The 1990 Carl D. Perkins Vocational and Applied Technology Act created a requirement that states establish systems of standards and measures to assess vocational education programs. The 1990 Perkins Act also authorized federal support for projects to create skill standards for a wide variety of occupations and industries. The National Skills Standards Board (NSSB), authorized in 1994 by the Goals 2000: Educate America Act, is building on these projects and on other efforts to establish skill standards. Its purpose is to stimulate the development of a voluntary national system of skill standards by creating a framework of career clusters within which skill standards can be developed. To achieve this goal, NSSB supports partnerships of business, trade, education, community, and other organizations to develop skill standards. It also endorses skill standards systems developed by industry-labor-education partnerships.

Building on earlier efforts to promote standards and accountability in vocational education, the Carl D. Perkins Vocational and Technical Education Act of 1998 expands requirements for states to develop performance accountability systems, including state-level measures of student skill attainment. Starting in program year 2000 (July 1999–June 2000), each state must establish and meet annual levels of performance for four "core indicators" specified in the law. State performance on the indicators must be measured and reported annually.

Increased accountability is also sought at the federal level. The Government Performance and Results Act of 1993 (GPRA) requires federal departments and agencies to prepare annual performance plans that establish specific goals for each year, starting with fiscal year (FY) 1999 (October 1998–September 1999) (Groszyk 1995). To meet its GPRA reporting requirements, OVAE must submit an annual report comparing the status of occupational programs with the goals identified in its annual performance plan. One performance indicator in OVAE's plan for FY 99 specifies that "by fall 2000, there will be an increasing proportion of vocational programs with skill competencies and related assessments, and with industry-recognized skill certificates in secondary and postsecondary institutions" (OVAE 1998). The summary tables in this report present statistics relevant to this OVAE performance indicator.

Focus of this report

This report focuses on three specific indicators of occupational program activities:

- the use of skill competency lists in occupational programs,
- the extent of industry involvement in developing or adopting the competency lists, and
- the credentialing of skill proficiencies.

The findings on these indicators are based on schools and institutions that offered one or more occupational programs that prepared students for occupations examined in the surveys.

Occupational Programs Examined in the Surveys

The secondary survey began by asking whether the schools offered vocational programs[1] that prepared students for any of 28 selected occupations within six broad occupation areas (business and marketing occupations, technical occupations, mechanical occupations, building trades, health/life sciences occupations, and service occupations). The postsecondary survey asked whether the institutions offered occupational programs in 32 similar occupations in the same six occupation areas.

Programs at the secondary level

Overall, a majority (66 percent) of public secondary schools offered one or more occupational programs that prepared students for the selected occupations: 35 percent of the schools offered 1 to 5 programs, 18 percent offered 6 to 10 programs, and another 13 percent offered more than 10 programs. However, about one-third (34 percent) of the schools did not offer any programs that prepare students for these occupations.[2] On average, vocational schools offered more occupational programs than did comprehensive schools; for example, 44 percent of vocational schools compared with 9 percent of comprehensive schools offered more than 10 programs for the listed occupations.

Programs at the postsecondary level

A large majority of less-than-4-year postsecondary institutions (90 percent) offered one or more programs for the selected occupations. About half of the institutions offered 1 to 5 programs, another 11 percent offered 6 to 10 programs, and an additional 27 percent offered more than 10 programs. Two-year institutions offered considerably more programs than less-than-2-year institutions; for example, 43 percent of 2-year institutions compared with 5 percent of less-than-2-year institutions offered more than 10 programs that prepared students for the occupations.

The large differences between 2-year and less-than-2-year institutions in the number of programs offered may skew the results for analyses based on "all of their programs" or "at least half of their programs"; that is, since less-than-2-year institutions offer fewer programs, it is easier to meet the criteria for "all of their programs" or "at least half of their programs." For this reason, comparisons between 2-year and less-than-2-year institutions will be discussed in relation to whether institutions meet the various criteria for "at least one of their programs."

Use of Skill Competencies

To provide a description of the use of skill competencies in occupational programs, respondents in both surveys were asked whether skill competency lists had been developed or adopted for programs that prepare students for each occupation considered in the surveys. In both surveys, skill competencies were defined as follows:

> A skill competency is a concept, skill, or attitude that is essential to an occupation; the level of attainment or performance of a skill competency is a skill standard. In this survey, we use the term "skill competencies" to refer to both skill competencies and skill standards.

Typically, the skill competencies reported might incorporate skill standards that were developed by the state and/or those developed locally through consultation between teachers and local employers. Although some programs might have also integrated existing national standards,[3] the use of such standards cannot be determined from these surveys.

Skill competency lists at the secondary level

Most secondary schools with one or more of the relevant occupational programs had developed or adopted skill competency lists for their programs.

- About three-fourths (77 percent) of the schools had developed or adopted skill competency lists for all of their programs, 91 percent had competencies for at least half their programs, and 94 percent had them for at least one program (table A).

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[1] For the secondary survey, a vocational program was defined as a sequence of courses designed to prepare students for an occupation (e.g., nurses' aide) or occupation area (e.g., health care) that typically requires education below the baccalaureate level. This definition did *not* include career exploration or other introductory courses that prepare students for adult life or for work in general (e.g., consumer and homemaking, industrial arts). A similar definition was used at the postsecondary level, except that a noncredit occupational program could have consisted of only one course or more than one course. This report refers to both secondary and postsecondary programs as *occupational programs*.

[2] One possible reason for this finding is that the definition of vocational programs used in this survey excluded lower level vocational programs that typically do not prepare students for at least entry-level jobs within the occupations considered in the survey. Another explanation is that some of the schools might be sending their students to area vocational schools for technical education training.

[3] Although there are some existing national standards (e.g., the National Institute for Automotive Service Excellence [ASE] automobile standards), the NSSB skill standards do not yet exist.

Table A.—Percent of public secondary schools indicating they had developed or adopted skill competency lists for occupational programs that prepare students for selected occupations, by school type and extent of industry input: 1999

	All schools[1]	Schools with one or more occupational programs		
		All	Vocational	Comprehensive
Schools had developed or adopted skill competency lists for				
All of their occupational programs	51	77	84	76
At least half of their occupational programs	61	91	96	90
At least one of their occupational programs	63	94	99	93
Schools had developed or adopted skill competency lists *with at least some industry input* for				
All of their occupational programs	35	52	71	48
At least half of their occupational programs	46	70	84	67
At least one of their occupational programs	51	77	93	74
Schools had developed or adopted skill competency lists *with at least equal industry input*[2] for				
All of their occupational programs	11	17	27	15
At least half of their occupational programs	17	25	33	24
At least one of their occupational programs	23	35	50	32

[1] Percent of all public secondary schools, including those that do not offer any programs that prepare students for the occupations examined in this survey.

[2] Industry input in developing or adopting the skill competencies was at least equal to the input of educators.

NOTE: Estimates are based on public secondary schools with 11th and 12th grades, i.e., schools that may offer upper level occupational programs. For schools that offer programs that prepare students for the occupations examined in this study, the number of programs could range from 1 to 28.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Vocational Programs in Secondary Schools," FRSS 72, 1999. (Originally published as tables 3, 7, and 9 on pp. 12, 20, and 24 of the complete report from which this article is excerpted.)

- A large majority of the schools had developed or adopted skill competencies for programs offered in each of the six occupation areas. For example, 85 percent had competencies for all of their programs in business and marketing occupations, and 89 percent had competencies for at least one program in this occupation area.
- Vocational schools were somewhat more likely than comprehensive schools to develop or adopt skill competencies for at least one program offered (99 vs. 93 percent; table A). However, differences between vocational and comprehensive schools were not significant when all their programs or at least half of their programs were considered.

Skill competency lists at the postsecondary level

As with secondary schools, a large proportion of 2-year and less-than-2-year postsecondary institutions with one or more of the relevant occupational programs reported that skill competency lists had been developed or adopted for their programs.

- Seventy-seven percent of the institutions had developed or adopted skill competencies for all of the programs offered, 89 percent for at least half the programs offered, and 93 percent for at least one program (table B).
- A large majority of the institutions had skill competency lists for programs within each of the six occupation areas. For example, 75 percent had competencies for all of the programs offered for business and marketing occupations, and 82 percent had competencies for at least one program in this occupation area.
- There were no significant differences between 2-year and less-than-2-year institutions in the use of skill competencies for *at least one* program offered by the institution (92 compared with 96 percent; table B). As pointed out earlier, large differences between 2-year and less-than-2-year institutions in the use of skill competencies for *all of their programs* or *at least half of their programs* are likely to be confounded by differences in the number of programs offered.

Industry Input in Skill Competency Development

The surveys also focused on the role of industry in the development or adoption of skill competencies. Industry involvement is critical to ensure that students are learning

Table B.—Percent of less-than-4-year postsecondary institutions indicating they had developed or adopted skill competency lists for occupational programs that prepare students for selected occupations, by level of institution and extent of industry input: 1999

	All institutions*	Institutions with one or more occupational programs		
		All	2-year	Less-than-2-year
Institutions had developed or adopted skill competency lists for				
All of their occupational programs	69	77	66	91
At least half of their occupational programs	79	89	83	95
At least one of their occupational programs	84	93	92	96
Institutions had developed or adopted skill competency lists *with at least some industry input* for				
All of their occupational programs	57	63	57	72
At least half of their occupational programs	69	77	77	77
At least one of their occupational programs	75	83	88	78
Institutions had developed or adopted skill competency lists *with at least equal industry input* for				
All of their occupational programs	23	26	18	36
At least half of their occupational programs	31	34	29	41
At least one of their occupational programs	42	47	49	44

*Percent of all 2-year and less-than-2-year postsecondary institutions, including those that do not offer any programs that prepare students for the occupations examined in this survey.

NOTE: Estimates are based on 2-year and less-than-2-year institutions with Title IV eligibility. For institutions that offer occupational programs that prepare students for the occupations examined in this study, the number of programs could range from 1 to 32.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Survey on Occupational Programs in Postsecondary Education Institutions," 1999. (Originally published as tables 5, 11, and 13 on pp. 16, 28, and 32 of the complete report from which this article is excerpted.)

the skills currently required by industry, particularly in fast-changing industries such as information technology, health, and manufacturing. Thus, schools and postsecondary institutions were asked to indicate the extent of industry input in skill competency development—that is, whether the skill competency lists were developed exclusively by individual course instructors, exclusively by group(s) of educators, primarily by educators with industry input, with about equal educator and industry input, or primarily/exclusively by industry. These variables were used to construct three measures of industry input: *at least some industry input*, *at least equal input*, and *primary or exclusive industry input*.

Industry input at the secondary level

Among secondary schools that offered one or more occupational programs for occupations covered in the study, a substantial proportion had *at least some industry input* in developing skill competency lists for their occupational programs. Relatively fewer schools indicated that industry had input *at least equal* to that of educators. There were too few schools reporting *primary or exclusive industry input* to show the data in tables.[4]

- About half (52 percent) of the schools had *at least some industry input* in skill competency development for all the programs offered, 70 percent had this level of industry input for at least half their programs, and 77 percent for at least one program (table A).
- Compared with the proportion of schools reporting at least some industry input in skill competency development, relatively few schools indicated that industry input was *at least equal* to that of educators. Seventeen percent of the schools had at least equal industry input in skill competency development for all occupational programs offered, 25 percent for at least half their programs, and 35 percent for at least one program (table A).
- Overall, the likelihood of industry involvement in skill competency development was greater for vocational than comprehensive schools; for instance, vocational schools were more likely than comprehensive schools to report *at least some industry input* in skill competency development for at least one program offered (93 vs. 74 percent; table A). This difference was consistent for programs that prepared students for each occupation area except health occupations and service occupations.
- Considering *at least equal industry input* in skill competency development, vocational schools were

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[4] For example, the proportion of schools with programs for which industry had primary or exclusive input in skill competency development was less than 5 percent for the programs that prepared students for 23 of the 28 occupations considered in the study.

more likely than comprehensive schools to report this level of industry involvement in at least one program offered by the school (50 vs. 32 percent; table A). However, this difference was consistent only for programs that prepared students for building trades (39 vs. 22 percent).

Industry input at the postsecondary level

As with secondary schools, a majority of 2-year and less-than-2-year postsecondary institutions with one or more relevant occupational programs reported *at least some industry input* in developing or adopting skill competency lists for their programs. Relatively fewer institutions reported *at least equal industry input*, and the institutions with *primary or exclusive industry input* in skill competency development were too few to be reported.[5]

- About two-thirds (63 percent) of the postsecondary institutions had *at least some industry input* in skill competency development for all programs offered, 77 percent reported this level of industry involvement for at least half their programs, and 83 percent for at least one program (table B).
- Compared with the percentage of institutions reporting some industry input, fewer institutions offered programs for which industry involvement in skill competency development was *at least equal* to that of educators. Twenty-six percent reported equal industry involvement for all occupational programs offered, 34 percent for at least half the programs, and 47 percent for at least one program (table B).
- Two-year institutions were somewhat more likely than less-than-2-year institutions to report *at least some industry input* in skill competency development for *at least one program* offered (88 vs. 78 percent; table B). However, this difference did not hold when *equal industry input* was considered.

Credentialing: Skill Certificates and Industry-Related Credentials

The secondary school survey asked whether occupational programs for each occupation prepared students to earn skill certificates. Because credentialing procedures are different at the postsecondary level, postsecondary institutions were asked whether occupational programs prepared students to earn various credentials, including institution-based credentials (associate's degrees or institutional certificates/diplomas) and industry-related credentials (company certificates; industry/trade certificates or diplomas; or state registrations, licenses, or certificates). Because of the focus of this report, only industry-related credentials are examined at the postsecondary level.

Skill certificates at the secondary level

Of the secondary schools that offered one or more relevant occupational programs, about half reported that at least one of their programs prepared students to earn skill certificates.

- About one-third (31 percent) of the secondary schools reported that all their occupational programs prepared students to earn skill certificates, 43 percent provided this type of student credentialing for at least half of the programs offered, and 55 percent did so for at least one program.
- Vocational schools were more likely than comprehensive schools to offer programs that prepared students to earn skill certificates. For example, 52 percent of vocational schools compared with 27 percent of comprehensive schools reported that all of their programs prepared students to earn skill certificates. Similar differences were observed when programs for each occupation area were examined.

Industry-related credentials at the postsecondary level

Most of the 2-year and less-than-2-year postsecondary institutions offering one or more occupational programs reported that students in at least one program could work toward industry-related credentials.

- About half (53 percent) of the institutions reported that students in all the programs offered could work toward industry-related credentials. In addition, 76 percent indicated that at least half of their programs prepared students for industry-related credentials, and 87 percent had at least one program that prepared students for those credentials.
- Overall, 2-year institutions did not differ significantly from less-than-2-year institutions in offering *at least one program* in which students could work toward industry-related credentials. However, for each occupation area (with the exception of service occupations), 2-year institutions were less likely than less-than-2-year institutions to report that students could work toward industry-related credentials for at least one program.

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[5] For example, the proportion of institutions with programs for which industry had primary or exclusive input in skill competency development was less than 10 percent for the programs that prepared students for 25 of the 32 occupations considered in the study.

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For technical information, see the complete report:

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Federal Support for Education: Fiscal Years 1980 to 1999

Charlene M. Hoffman

This article was excerpted from the Introduction and Highlights of the report of the same name. The data are primarily from the U.S. Office of Management and Budget, the U.S. Department of Education's Budget Office, the National Science Foundation, and the budget offices of other federal agencies.

Introduction

This report attempts to provide a comprehensive picture of total federal financial support for education since fiscal year (FY) 1980.[1] In addition to Department of Education programs, the many other federal programs that support education are included. The report also includes other types of federal support that are sometimes overlooked.

Categories of federal support

This report puts federal education funding into three categories: on-budget funds, off-budget support, and nonfederal funds generated by federal programs.

On-budget funds are provided through programs funded by congressional appropriations. Although some consolidation of education programs in one federal agency was achieved with the establishment of the U.S. Department of Education in 1980, many large and significant federal education programs remain outside the Department. In addition, many federal programs involving education have other primary purposes. In order to account fully for all federal support for education, programs residing in other federal departments and agencies having significant educational components are included in this report, even if they have additional purposes.

Off-budget support is federal money that has been excluded from the budget by law. Off-budget support in this report consists of the loan capital that is provided directly by the federal government under the William D. Ford Federal Direct Student Loan (FDSL) program.

Nonfederal funds generated by federal programs result from federal loan guarantees and interest subsidies to support loan capital raised through various private and public sources. Nonfederal funds are also made available for education purposes when federal programs require matching funds or offer incentives and subsidies. Almost all such nonfederal education funds go to postsecondary education.

Federal tax expenditures

Education programs can be supported either by direct funding or by indirect funding mechanisms such as tax expenditures. In this report, federal tax expenditures include only reductions in tax revenue received by the federal government due to deductions, exemptions, and credits allowable in the tax code. Unless otherwise noted, tables and discussions of federal support in this report do not include federal tax expenditures.

Outlays versus obligations

To the extent possible, outlays were used in this report rather than obligations, with the exception of funds for academic research at institutions of higher education. Outlays are the actual amount of dollars spent. Obligations are spending commitments by the federal government that will require outlays either immediately or in the future.

Highlights

The federal government provides support for education well beyond programs funded through the Department of Education. Federal support for education, excluding estimated federal tax expenditures, was an estimated $115.6 billion in FY 99 (table A), an increase of $52.8 billion, or 84 percent, since FY 90. After adjustment for inflation, federal support for education increased 47 percent between FY 90 and FY 99.

For FY 99, on-budget federal funds for education programs were estimated to be $82.8 billion, an increase of 60 percent since FY 90 in current dollars[2] or an increase of 28 percent after being adjusted for inflation. Off-budget support and nonfederal funds generated by federal legislation (predominantly postsecondary education loans) were estimated at

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[1] Some data have been revised from *Federal Support for Education: Fiscal Years 1980 to 1998* (Hoffman 1998) and *Digest of Education Statistics: 1998* (Snyder 1999). In addition to the data covering FY 80 to FY 99, appendix tables in the full report include historical data from FY 65, FY 70, and FY 75.

[2] Current dollars are amounts that have not been adjusted for inflation. Constant dollars are amounts that have been adjusted by means of price indexes to eliminate inflationary factors and allow direct comparison across years. In this report, constant dollars were computed based on the federal funds composite deflator from the U.S. Office of Management and Budget (OMB 1999). The inflation index rose 99.3 percent between FY 80 and FY 99.

Table A.—Federal on-budget funds for education, by level or other educational purpose, and off-budget support and nonfederal funds generated by federal legislation: Fiscal years 1980, 1989, 1990, and 1999

Level	FY 80	FY 89	FY 90	FY 99[1]
	[In billions of **current** dollars]			
Total	$39.3	$59.5	$62.8	$115.6
On-budget	34.5	48.3	51.6	82.8
Elementary and secondary	16.0	19.8	22.0	39.7
Postsecondary	11.1	13.3	13.7	18.2
Libraries, museums, and other	1.5	3.2	3.4	5.8
Research at educational institutions	5.8	12.0	12.6	19.2
Off-budget support and nonfederal funds[2]	4.9	11.3	11.2	32.8
	[In billions of **constant** FY 99 dollars]			
Total	$78.4	$77.5	$78.6	$115.6
On-budget	68.7	62.9	64.6	82.8
Elementary and secondary	31.9	25.8	27.5	39.7
Postsecondary	22.2	17.3	17.1	18.2
Libraries, museums, and other	3.1	4.1	4.2	5.8
Research at educational institutions	11.6	15.6	15.8	19.2
Off-budget support and nonfederal funds[2]	9.7	14.7	14.0	32.8

[1] Estimated.

[2] Off-budget support and nonfederal funds generated by federal legislation.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education: Office of the Undersecretary, unpublished data, and National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal years (FY) 1982–2000 (selected years); National Science Foundation, *Federal Funds for Research and Development*, FY 1980–99 (selected years); and unpublished data obtained from various federal agencies. (Originally published as an untitled table on p. iv of the complete report from which this article is excerpted.)

$32.8 billion, a rise of 193 percent in current dollars between FY 90 and FY 99 and 134 percent in constant dollars.

Support from on-budget program funds

Between FY 80 and FY 99, after being adjusted for inflation, federal on-budget program funds for elementary and secondary education[3] increased 24 percent; postsecondary education funds declined 18 percent; other education funds (which include funds for libraries, museums, cultural activities, and miscellaneous research) increased 87 percent; and funds for research at universities and university-administered research and development centers increased 66 percent.

Between FY 90 and FY 99, federal on-budget funds for elementary and secondary education increased 44 percent in constant dollars, postsecondary education funds increased 6 percent, other education funds increased 36 percent, and research funds at colleges and universities increased 22 percent.

In FY 99, Department of Education outlays totaled $34.5 billion (table B), reflecting an increase of 32 percent after being adjusted for inflation from FY 80 and an increase of 19 percent between FY 90 and FY 99. The Department of Education's share of total federal on-budget education funds rose from 38 percent in FY 80 to 45 percent in FY 90, and dropped to 42 percent in FY 99 (figure A).

Estimates of federal tax expenditures

Between FY 80 and FY 99, estimated federal tax expenditures, after being adjusted for inflation, increased 41 percent. Between FY 90 and FY 99, they went up 57 percent. Estimated federal tax expenditures' share of total federal support in education was 32 percent in FY 99.

Recipients of federal education support

Over 58 percent of federal education support, excluding estimated federal tax expenditures, went to educational institutions in FY 99. Another 20 percent was used for student support. The remaining 22 percent went to banks

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[3] In this report, elementary and secondary education programs include adult and vocational education programs in the U.S. Department of Education as well as other training programs, such as those in the U.S. Department of Labor (the Job Corps and other job training programs) and those in the U.S. Department of Veterans Affairs.

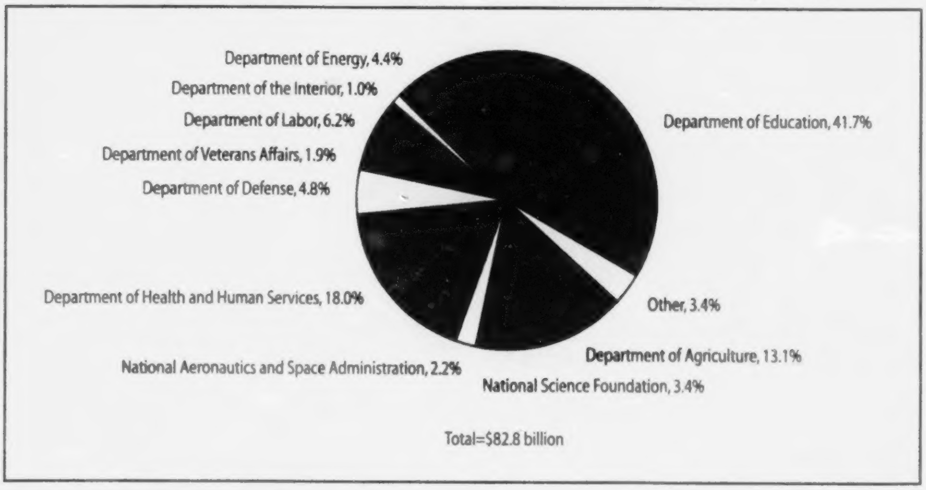
Table B.—Largest providers of federal on-budget funds for education in fiscal year 1990, by agency: Fiscal years 1980, 1989, 1990, and 1999

Agency	FY 80	FY 89	FY 90	FY 99*
	[In billions of **current** dollars]			
Dept. of Education	$13.1	$21.7	$23.2	$34.5
Dept. of Health and Human Services	5.6	7.0	8.0	14.9
Dept. of Agriculture	4.6	5.8	6.3	10.9
Dept. of Labor	1.9	2.3	2.5	5.2
Dept. of Defense	1.6	3.7	3.6	3.9
Dept. of Energy	1.6	2.6	2.6	3.6
National Science Foundation	0.8	1.5	1.6	2.8
National Aeronautics and Space Administration	0.3	1.0	1.1	1.8
Dept. of Veterans Affairs	2.4	0.9	0.8	1.6
	[In billions of **constant** FY 99 dollars]			
Dept. of Education	$26.2	$28.2	$29.0	$34.5
Dept. of Health and Human Services	11.2	9.1	10.0	14.9
Dept. of Agriculture	9.1	7.5	7.8	10.9
Dept. of Labor	3.7	3.0	3.1	5.2
Dept. of Defense	3.1	4.9	4.5	3.9
Dept. of Energy	3.2	3.3	3.2	3.6
National Science Foundation	1.6	1.9	2.0	2.8
National Aeronautics and Space Administration	0.5	1.3	1.4	1.8
Dept. of Veterans Affairs	4.7	1.2	0.9	1.6

*Estimated.

SOURCE: U.S. Department of Education: Office of the Undersecretary, unpublished data, and National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal years (FY) 1982–2000 (selected years); National Science Foundation, *Federal Funds for Research and Development*, FY 1980–99 (selected years); and unpublished data obtained from various federal agencies. (Originally published as an untitled table on p. iv of the complete report from which this article is excerpted.)

Figure A.—Percentage distribution of federal on-budget funds for education, by agency: Fiscal year 1999



NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, compiled from data appearing in U.S. Office of Management and Budget, *Budget of the United States Government*, fiscal year (FY) 1999; National Science Foundation, *Federal Funds for Research and Development*, FY 99; and unpublished data obtained from various federal agencies. (Originally published as figure 2 on p. 8 of the complete report from which this article is excerpted.)

and other lending agencies, libraries, museums, and federal institutions.

Schools and colleges derived 11 percent of their FY 99 revenues from the federal government, with the remaining revenues coming from state and local governments, individuals, and private organizations. Of the estimated $618.6 billion in direct expenditures by schools and colleges in FY 99, revenues from federal sources amounted to $67.4 billion and revenues from other sources amounted to $551.2 billion.

The estimated federal share of expenditures of educational institutions declined from 14 percent in FY 80 to 10 percent in FY 90 and 11 percent in FY 99. Among elementary and secondary educational institutions, the federal share declined from 12 percent in FY 80 to 7 percent in FY 90 and 8 percent in FY 99. Among institutions of higher education, the federal share declined from 18 percent in FY 80 to 14 percent in FY 90 and 15 percent in FY 99.

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For technical information, see the complete report:

Hoffman, C.M. (2000). *Federal Support for Education: Fiscal Years 1980 to 1999* (NCES 2000–019).

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METHODOLOGY

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Increasing the Participation of Special Needs Students in NAEP: A Report on 1996 NAEP Research Activities

John Mazzeo, James E. Carlson, Kristin E. Voelkl, and Anthony D. Lutkus

This article was originally published as the Executive Summary of the Research and Development Report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Mathematics and Science Assessments.

Research and Development Reports are intended to

- Share studies and research that are developmental in nature.
- Share results of studies that are on the cutting edge of methodological developments.
- Participate in discussions of emerging issues of interest to researchers.

These reports present results or discussion that do not reach definitive conclusions at this point in time, either because the data are tentative, the methodology is new and developing, or the topic is one on which there are divergent views. Therefore, the techniques and inferences made from the data are tentative and are subject to revision.

Introduction

This study grew out of concerns about the underrepresentation of students with special needs in the National Assessment of Educational Progress (NAEP) assessments. The term "special needs students" is sometimes used to include both students with disabilities and students who are limited English proficient (LEP). In the 1996 NAEP assessment samples, 10 percent of 4th-graders, 9 percent of 8th-graders, and 5 percent of 12th-graders were identified by their schools as students with disabilities. In the same assessment year, 4 percent of 4th-graders and 2 percent of 8th- and 12th-graders were identified by their schools as students with limited English proficiency (Reese et al. 1997, 67). Schools participating in NAEP have been permitted to exclude individuals they identify as special needs students from the assessment, in accordance with criteria provided by the program at that time. In fact, at least half of all special needs students in the NAEP samples were excluded from NAEP assessments in 1992 and 1994. This exclusion has raised concerns that some special needs students who could be meaningfully assessed are being excluded from NAEP. Moreover, there is an additional concern that variations across locales in exclusion practices may introduce biases in NAEP results.

In recent years, a number of policy, legislative, civil rights, and technical considerations have caused the NAEP program to look more closely at its administration and assessment procedures and to consider changes that can increase participation among students with disabilities and LEP students. Based on previous studies (National Academy of Education 1993) as well as recommendations from various offices in the U.S. Department of Education, program procedures have been modified with the aim of increasing participation among special needs students. Modifications were made in two areas (Olson and Goldstein 1996). First, inclusion criteria for the NAEP 1996 assessment were revised with the intention of making them clearer, more inclusive, and more likely to be applied consistently across jurisdictions participating in the state assessment program. Second, for the first time in NAEP, a variety of assessment accommodations were offered to (1) students with disabilities whose Individualized Education Plan (IEP) specified such accommodations for testing; and (2) LEP students who, in the opinion of their instructors, required an accommodation in order to take the assessment in English.

Content of this report

This report presents in-depth analyses of the effects on inclusion rates of the above efforts to increase the participation of special needs students in NAEP. It also contains an analysis of selected technical characteristics of the assessment results and a review of descriptive results of the background characteristics and educational experiences of students with disabilities and LEP students who participated in the NAEP 1996 national assessments in mathematics and science.

In particular, data are presented on

- the possible effect on the NAEP proficiency scales of including greater percentages of special needs students;
- the comparability of results from nonstandard administrations (i.e., administrations in which accommodations were allowed) to results obtained under standard conditions; and
- the effect of nonstandard administrations on NAEP's capacity to provide accurate comparisons of trends over time.

In addition, it is important to be clear on what this report does not contain:

- This report does not provide an in-depth examination of the performance on NAEP of students with disabilities and LEP students.
- The relatively small sample sizes obtained in the study did not allow disaggregation of students with disabilities and LEP students in many of the statistical analyses that dealt with the effects on NAEP scales.
- This report does not separate students with disabilities from LEP students in the Differential Item Functioning (DIF) analyses.
- This report does not look at performance results or inclusion rates for students with disabilities and LEP students by state.

Design of the 1996 assessments in mathematics and science

An experiment was designed for the 1996 assessments in mathematics and science, which permitted analysis of data relevant to the issues above. In addition, a questionnaire was included that was designed to obtain information on student background and educational experiences. The questionnaire was to be completed for all sampled students with disabilities and for all sampled LEP students.

The design of the NAEP 1996 assessment included three distinct national samples of schools. In the first of these school samples (denoted S1), the assessment was conducted using the same inclusion criteria used during the 1990 and 1992 NAEP assessments in mathematics and science. In the second school sample (denoted S2), revised inclusion criteria were used. No assessment accommodations or adaptations were offered to students in S1 or S2 schools. In the third sample (denoted S3), the assessment was conducted using inclusion criteria that were identical to those used in S2 schools. The S3 sample was distinguished, however, by the availability of a variety of assessment accommodations and adaptations. To ensure sufficient amounts of data for planned analyses, students with disabilities and LEP students were oversampled in national

S2 and S3 schools, and all students in S3 who received an accommodation at a given grade were administered the same NAEP assessment booklet.

Technical Characteristics of Results

The findings of the current research on technical characteristics of the assessment results, based on the combined data from all special needs students, include the following:

- For two of the three grades in science, there is some evidence to suggest that test results obtained using accommodations and adaptations cannot be fit with the same Item Response Theory (IRT)* model as results obtained under standard administration conditions. The evidence for the mathematics assessment was less conclusive. Because small sample sizes necessitated the combination of students with disabilities and LEP students for IRT and scaling analyses, it is not yet clear whether future NAEP reports will need to report these categories of students separately. A future report using larger samples (combined state data) from the 1998 reading assessment should shed further light on this question.
- Despite the finding above, the inclusion of data from nonstandard administrations had no discernable effect on aggregate NAEP scaling results in mathematics and science at any of the three grades. Differences in test characteristic curves and test information curves plotted with and without the inclusion of such data differed no more than would be expected due to sampling variability.
- Proficiency means were estimated for the NAEP mathematics and science scales, with and without the inclusion of students with accommodations in testing, at each of grades 4, 8, and 12. There were no significant differences in the overall means or in the means for significant subgroups at any of the three grades.
- The results reported here suggest that the procedural changes being considered would not significantly affect the NAEP scale score results. If so, it may be possible for the NAEP program to achieve its joint goals of increasing inclusion while maintaining trend lines. However, additional research is necessary to determine the generality of these findings across content areas and over time, as state policies and procedures with respect to inclusion evolve.

Data from background questionnaires did allow separate analyses for students with disabilities and LEP students pertaining to background characteristics, educational experiences, and inclusion rates. Major findings for these analyses are summarized below.

Students With Disabilities

Background characteristics and educational experiences

- Learning disability was by far the most frequently reported category for students with disabilities, with close to three of four students so identified at each of the three grades.
- About half of the students at each grade were described as having mild disabilities. The remaining half at each grade were almost all categorized with moderate to severe disabilities. Very few students receiving special education services at schools participating in NAEP (1 percent at grades 4 and 8, and 3 percent at grade 12) were judged to have profound disabilities.
- Regardless of grade level, about half of all students with disabilities were mainstreamed in academic subjects at least 80 percent of the time.
- In reading/language arts, half or fewer of the students with disabilities received instruction that was at grade level. In mathematics and science, the situation was slightly better at the two lower grades. More than half of the grade-4 and grade-8 students with disabilities received grade-level instruction, and over 70 percent of these students received grade-level instruction in science.
- Almost all students who received instruction that was at or above grade level received the same curriculum content as their nondisabled peers. In contrast, fewer than half of those students with disabilities who received below grade-level instruction were taught the same curriculum content as their nondisabled peers.
- In all three grades, more than 75 percent of students with disabilities were judged by school personnel to be performing below grade level in reading/language arts. Reported performance levels in mathematics and science were somewhat higher than those in reading/language arts at grade 4.

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*IRT analyses provide a common scale on which performance can be compared across groups such as those defined by grade and characteristics, including gender and race/ethnicity.

- Across the three grades, respondents reported that 42 to 44 percent of students with disabilities received some form of accommodation or adaptation in testing.

Inclusion rates

- Comparisons of questionnaire results with actual participation rates from the 1996 mathematics assessment suggest that (1) increases in the percentages of students with disabilities participating in NAEP are not likely to result solely from revisions to inclusion criteria; and (2) a further expansion of accommodations or adaptations permitted by NAEP, or a change in NAEP guidelines as to who is eligible for special testing conditions, could result in further small increases in inclusion percentages.
- Most exclusion decisions were made on the basis of what is stated in the IEP, and relatively few exclusion decisions were made on the basis of a judgment of severe cognitive impairment, absent corroborating direction from the IEP. However, results also suggest that, for substantial percentages of excluded students, neither a determination by the IEP team nor the presence of cognitive impairments was given as a reason for exclusion.
- Some students who do not regularly receive accommodations or adaptations were offered them in NAEP and others who should not have been tested were, in fact, included. These results suggest that incorrect decisions regarding inclusion or testing conditions may have been made or that incorrect questionnaire data may have been provided.

Students With Limited English Proficiency

Background characteristics and educational experiences

- The largest proportion of LEP students spoke Spanish as their native language (74 percent at grade 4, 72 percent at grade 8, and 54 percent at grade 12). The most frequently encountered other languages were Vietnamese, Hmong, Chinese, Russian, and Pacific Island languages.
- Forty-four percent of grade-4 LEP students, 47 percent of grade-8 LEP students, and 65 percent of grade-12 LEP students had received academic instruction primarily in English for 3 or more years.
- At grades 8 and 12, few students received native-language instruction in academic areas. At grade 4, the percentages of LEP students who received native-language instruction in reading/language arts, mathematics, and science were 22, 27, and 26 percent, respectively.
- Among LEP students receiving English-language instruction, the majority received instruction at grade level at all three grades.
- The vast majority of LEP students at all three grades (87 percent of grade-4 LEP students, 80 percent of grade-8 LEP students, and 81 percent of grade-12 LEP students) received some special academic instruction in English or in their native language. At grades 8 and 12, such special instruction appears to have been predominantly in English.
- Although most LEP students were receiving English-language *instruction* at grade level, a significant percentage were judged to be *performing* below grade level in English. In reading/language arts, where one might expect the impact of limited language proficiency to be most pronounced, 70 percent of grade-4 and 62 percent of grade-8 LEP students were judged by school personnel as performing below grade level in English; at grade 12, 50 percent were so judged. In science, the percentages reported performing below grade level ranged from 30 percent at grade 12 to 44 percent at grade 8. In mathematics, the percentages ranged from 33 percent at grade 12 to 46 percent at grade 8.
- Respondents indicated that 37 percent of grade-4 LEP students, 27 percent of grade-8 LEP students, and 22 percent of grade-12 LEP students used accommodations and adaptations in achievement testing in their schools.

Inclusion rates

- The operational criteria used in NAEP from 1990 to 1996 indicated that LEP students enrolled in schools where English is the primary language of instruction for 2 or more years were to be included in the assessment. At least 85 percent of 4th-grade LEP students, 67 percent of 8th-grade LEP students, and 83 percent of 12th-grade LEP students had been enrolled for 2 or more years in schools where English was the primary language. Historically, NAEP inclusion rates for LEP students have been below the ideal minimums suggested by these questionnaire results.
- As was the case for students with disabilities, comparisons of questionnaire results with assessment inclusion rates for LEP students suggest that (1) increases in the percentage of LEP students are not

likely to result solely from revisions to inclusion criteria that do not also involve the provision of accommodations; and (2) further modest improvements in inclusion might still be possible if the list of permitted accommodations and adaptations can be expanded.

- Analyses of inclusion rates by the length of time students were enrolled in schools where English is the primary language of instruction provided some evidence that, when implemented without the provision of accommodations and adaptations, the revised criteria actually resulted in less inclusion among LEP students than did the original criteria. This evidence was strongest at grade 4.
- Under the revised criteria, all LEP students receiving academic instruction in English for 3 or more years were to be included in NAEP. Analyses based on questionnaire responses as to the number of years students were receiving academic instruction in English indicated that this ideal was not quite achieved. Inclusion rates among students with 3 or more years of academic instruction in English were high, but total inclusion was not achieved, even where accommodations and adaptations were provided.
- Some LEP students who do not usually receive accommodations in testing were apparently provided accommodations in the NAEP assessment. The percentages of LEP students in this category were small (10, 6, and 5 percent in grades 4, 8, and 12, respectively).
- Questionnaire results suggest that the procedural modifications made to NAEP had their primary impact on inclusion rates at grades 4 and 8 among students who would be tested in their native language if this accommodation were available. Participation rates for these students were higher when accommodations were available.

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To obtain the complete report (NCES 2000–473), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

School-Level Correlates of Academic Achievement: Student Assessment Scores in SASS Public Schools

Donald McLaughlin and Gili Drori

This article was excerpted from the Introduction and Conclusions of the report of the same name. The sample survey data are from the Schools and Staffing Survey (SASS), the National Assessment of Educational Progress (NAEP), and assessments conducted by state education agencies (SEAs).

Introduction

The Schools and Staffing Survey (SASS), conducted by the National Center for Education Statistics (NCES), offers the most comprehensive picture available of the education system in the United States. Initiated in 1987–88 and repeated in 1990–91 and 1993–94, SASS consists of surveys of districts, schools, principals, and teachers associated with a national sample of schools. It offers information on such issues as policies, programs, services, staffing, and enrollment at both the district and school levels, as well as principals' and teachers' backgrounds, training, experience, perceptions, and attitudes. Given the broad reach of SASS, it can speak to a variety of important educational research and policy questions. The value of SASS would be even greater, however, if the relationship between these measures and the level of achievement in schools were known. As noted by others (Boruch and Terhanian 1996; Kaufman 1996), by combining this survey information with data from other sources, SASS could more meaningfully inform debates over which factors relate to school effectiveness and could contribute to a broad-based evaluation of school improvement strategies.

The aim of this report is to show the potential value of a linkage between SASS and data on student academic achievement. To achieve this aim, our approach is two-staged. First, we match the 1993–94 SASS data with state reading and mathematics assessment scores for public schools in 20 states, adjusting for between-state differences in achievement scales by using State NAEP (the state-by-state component of the National Assessment of Educational Progress). Second, by combining these data sources, we identify school-level correlates of student achievement in a broad sample of American public schools.

We model the relationship between a variety of SASS school-level responses and average student assessment scores at the school level. In our model, average student achievement in a school is related to student background factors, school organizational features, teachers' professional characteristics, and school climate. Of particular interest in this study are the relationships among student achievement, average class size, and the school's behavioral climate. Overall, we investigate relationships among these measures in three types of schools—1,123 public elementary schools, 496 public middle schools, and 595 public high schools—in 20 states. The data are analyzed using correlational, multiple regression, and structural equation model analyses.

Substantive Findings

Although the analyses reported here merely scratch the surface of the potential for analyses of these data, they should provide evidence of a meaningful pattern of relationships between school-level factors and assessment scores.

Class size

The clearest result with respect to correlates of achievement is that average achievement scores are higher in schools with smaller class sizes. This result, obtained from structural equation modeling using both state assessment data and NAEP adjustments for between-state variance in achievement, is consistent across grade levels, although it is significant only in middle and secondary schools. While there are alternative causal explanations for this finding, such a finding in a large sample of public schools in 20 states is an important corroboration of the controlled research results that indicate that class size makes a difference.

The positive relationship between small classes and achievement was stronger for secondary schools than for elementary schools. In secondary schools, the positive association with achievement included both large schools and small classes. An important aspect of the relationship between class size and achievement, shown by the comparison of results with and without between-state variance components, is that it is primarily a between-state phenomenon. Restricting the study to within-state comparisons and then aggregating the results across 20 states yields much less evidence of a class-size relationship to achievement scores. This may be due to state policy-related limitations on variation in class sizes.

School climate

Substantive findings were not limited to class size. There was limited evidence of a positive relationship between teachers' perceptions of the school's behavioral climate and achievement scores. In particular, this relationship was only statistically significant when between-state variation was omitted from the data; and although all three analytical methods found it to be significantly positive in middle schools, it was not statistically significant in the structural equation analyses in elementary and high schools.

Conclusion

Based on these findings, one cannot avoid the conclusion that combining the SASS data with a school-level student achievement measure has the potential for addressing important policy questions about school-based strategies for improving student performance. Because the data are not longitudinal, causal inferences must be treated much more tentatively than conclusions based on data on the achievement gains of a specified set of students over time. Also, because the data are school means, they cannot address the factors that differentially affect the achievement of different students in the same school. Nevertheless, findings from analyses of the SASS student-achievement subfile, based on over 2,000 schools in 20 states, can contribute to the overall educational policy database.

Methodological Findings

This report demonstrates both the potential value of combining SASS with school-level assessment data and certain limitations of the restricted set of analyses reported here.

Feasibility and reliability of this approach

The primary conclusion reached in this study is that the strategy of matching school-level assessment scores to a national survey (1) is feasible and not costly (because the data are readily available) and (2) leads to valid and reliable conclusions about correlates of public school achievement across much of the United States. The additional step of linking the database to State NAEP to capture between-state achievement variation is also feasible and not costly and provides additional informational value.

It is clear from these analyses that between-state variation in achievement and in its correlates is an important component of the national database on education, because the contexts within states reduce the variance on key factors to the point that important relationships disappear. In a sense, that is the goal of many state policies—to provide resources to schools in such a way that students in all schools in a state have equal opportunities to achieve at high levels. However, in this database of 20 states, a quarter to a half of the variance in school sizes and class sizes is between states, and a third or more of the variance in percentage of minority enrollment is between states (table A). Studies that focus purely on variation between schools within states will miss the effects of these factors on educational achievement.

The methods used in this report focused on overall correlates of achievement, including between-state variation, but comparison with analyses of within-state relationships indicates the potential value of applying a multilevel analysis to these data. No state-level variables were included in this analysis, but combining this database with information on the educational policies of these 20 states, in a hierarchical linear structural equation model, would provide the basis for addressing many educational policy issues.

Generalizability of between-state achievement measures across grade levels

A positive methodological finding was the generalizability of the between-state achievement measures across grade levels. Although state assessment scores were available for grades 3 to 11, NAEP reading scores for individual states were only available for grade 4 in 1994. If the ordering of states in reading achievement changed substantially from grade 4 to grades 8 and 11, then the results of overall analyses of middle school and high school data would be diluted by linkage error. This dilution should not affect the within-state analyses, however.

The extension of the NAEP adjustment proved valid, in that the findings for secondary schools, using the between-state data, are as meaningful as the findings for elementary schools. This conclusion is not surprising, given the very high correlation of State NAEP means in different grades and subjects, but its support in this study may suggest new uses of State NAEP data in conjunction with state assessment data.

Low reliability of teacher qualifications data for school-level analyses

A limitation on the validity of aggregating teacher data for school-level analyses became apparent in the findings concerning teacher qualifications (average years of teaching experience and percent having a master's degree). These

Table A.—Percentage of between-school variance between states

School characteristics	Percent between-state variance		
	Elementary	Middle	Secondary
Achievement	32	30	39
Poverty	8	8	8
Racial/ethnic minority	29	33	48
Language barriers	27	13	34
School size	27	48	25
Class size	34	50	48
School climate	6	9	11
Teachers' perception of control	12	19	28
Teachers' perception of cohesiveness	2	8	6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "School Questionnaire" and "Teacher Questionnaire," 1993–94; and individual state education agencies (SEAs) in 20 states, state reading and mathematics assessment scores for public schools, 1993–94. (Originally published as table 7 on p. 42 of the complete report from which this article is excerpted.)

measures, unlike the teachers' responses to questions about school policies and school behavioral climate, had very low reliability *as measures of the school*, because there was relatively little systematic between-school variation: most of the variation was between teachers at the same school. This problem was manifest in the low intercorrelation between these measures; and, as a result, preliminary analytical findings concerning the relationships of this teacher qualifications factor to school-level achievement were uninterpretable. Ultimately, the decision was made to omit this factor from the analyses reported here.

Logical constraints on correlational data

Finally, although the data are purely correlational, there are logical constraints, such as that school factors probably do not cause differences in student background characteristics in the short term. Interpretation of the results of structural equation modeling in terms of hypothetical path models can lead to fruitful suggestions for avenues of research and policy development.

Future Research

Three broad areas of research stemming from this study appear to be fruitful: (1) hierarchical analyses to examine the relationships between state education policies and the SASS correlates of achievement; (2) development of a measure of a school's achievement gains over time, which can be associated with SASS measures; and (3) further refinement of the linkage functions between state assessments and NAEP.

State education policies and SASS correlates of achievement

The findings of this study clearly indicate different patterns of correlates of achievement within states and between states. Schools in the same state tend to operate within common frameworks of funding, staff accreditation, curriculum, testing, and school reform programs. With uniformity in these aspects of education, variations in other factors are more likely to manifest correlations with achievement. On the other hand, to the extent that state frameworks affect achievement outcomes, between-state correlates of achievement can emerge. An analysis methodology that simultaneously models the within- and between-state relationships among variables and takes measurement error into account is needed for this. With such a methodology, and with the addition of a database of quantitative indicators of relevant state policies, the SASS student achievement subfile would increase in value.

School achievement gains over time

Every school addresses the needs of a different student population with different resources, and it is therefore unfair to hold all schools accountable to the same achievement standard. However, a number of states are turning to reform criteria that base decisionmaking on measures of gains in achievement over years. Although SASS cannot easily add longitudinal student growth data, it is certainly feasible to add other years' school-level achievement data to the subfile. Specifically, the addition of 1997–98 reading scores, linked to the 1998 fourth- and eighth-grade State NAEP reading assessment and to Common Core of Data (CCD) estimates on changing enrollment patterns and resources over the intervening years, would provide the basis for identifying SASS factors (measured in 1994) that are predictive of gains in achievement. Of course, states continue to develop and refine assessment systems, and the state assessment scores for a school in 1998 may not be equivalent to scores obtained in 1994, so linkage of measures of achievement gains over time to repetitions of State NAEP is an essential requirement for the development of a longitudinal database.

The power of the database for longitudinal analyses can be greatly enhanced with the addition of the next administration of SASS. If a subsample of schools included in SASS in 1994 is also included in 2000, then using the 2000 State NAEP assessment for adjustment of mathematics scores would enable matching of longitudinal changes in SASS school-based factors with longitudinal changes in achievement, controlling for longitudinal changes in student background factors.

Linkage between state assessments and NAEP

A third line of research would focus on improving the achievement measures included in the SASS student achievement subfile. The linkages used for the analyses presented in this report were based entirely on the means, standard deviations, and correlations between State NAEP and state assessment school means. The errors in these linkages can be diminished significantly by more detailed analysis of the relationships among the scores. In particular, current research by NCES has found that linkages to NAEP can be improved by considering nonlinear terms and by including demographic indicators. For example, all state reading assessments are sensitive to racial/ethnic differences, but some are more sensitive than others. Their sensitivities could be matched to NAEP's measurement of the distribution of racial/ethnic achievement differences by explicitly including that matching factor in the NAEP adjustment step in constructing the SASS school-level achievement score. The result would be increased comparability of within-state variation in the achievement measure across states.

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NCES: Schools and Staffing Survey (SASS), "School Questionnaire" and "Teacher Questionnaire," 1993–94; and National Assessment of Educational Progress (NAEP) 1994 Reading Assessment, and 1992 and 1996 Mathematics Assessments.

Other: State reading and mathematics assessments for public schools, conducted in 1993–94 by state education agencies (SEAs) in the following 20 states: Alabama, California, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Montana, New Hampshire, New York, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, and Washington.

For technical information, see the complete report:

McLaughlin, D., and Drori, G. (2000). *School-Level Correlates of Academic Achievement: Student Assessment Scores in SASS Public Schools* (NCES 2000–303).

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To obtain the complete report (NCES 2000–303), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

A Recommended Approach to Providing High School Dropout and Completion Rates at the State Level

Marianne Winglee, David Marker, Allison Henderson,
Beth Aronstamm Young, and Lee Hoffman

This article was originally published as the Executive Summary of the Technical Report of the same name. The universe data are from the "Local Education Agency Universe Survey," part of the NCES Common Core of Data (CCD).

Introduction

The National Center for Education Statistics (NCES) has been collecting counts of public school dropouts through its Common Core of Data (CCD) survey since the 1991–92 school year. However, not all states report dropout data in strict agreement with the CCD definition (table A), with the result that data from these nonconforming states have been withheld from publication. This situation has led NCES to explore the feasibility of adjusting nonstandard dropout reports to make them comparable with those from states using the standard CCD definition.

The desire for comparable dropout statistics has been accompanied by considerable interest in developing a standard high school completion statistic based upon data available from the CCD. Between 1997 and 1999, staff from NCES and state education agencies worked with analysts from Westat (a private research firm) to develop a methodology for adjusting nonconforming dropout data and to test a proposed high school completion rate.

Key Findings and Recommendations

Dropout rates

The analyses presented in this report found that the major types of nonstandard dropout reporting practices have statistically significant, but different, effects on the size of state dropout rates. The most common variant practice uses a reporting calendar that effectively takes a "snapshot" count of dropouts at the conclusion of the school year rather than at the beginning of the next year (table B). This typically leads to a small net increase in the number of dropouts reported, when compared with the CCD reporting guidelines. The effects of how summer dropouts (those who complete one school year but fail to enroll for the next) are reported and whether students moving to adult education GED classes are considered dropouts (as required by the CCD) were stronger.

As a result, the report recommends that data from states using an alternative reporting calendar be published, without adjustment, with data from the states that conform to the CCD reporting calendar, and a footnote be used to identify states using an alternative reporting calendar. This would add 12 states to the number whose CCD dropout data are reported by NCES. Because the effects of the other two variations are stronger and more variable than the first, it is recommended that NCES continue to withhold publication of data from the states that follow these variations. There were 10 such states in 1995.

Completion rates

It appears from the analysis of dropout and completion data that the CCD can support a useful high school completion rate. This rate is the proportion of students who leave high

Table A.—Number of states reporting dropout data to the CCD: 1991 to 1995

	Number of states*	
Dropout year	Reported	Reported with CCD definition
1991	45	15
1992	46	20
1993	46	21
1994	46	25
1995	45	23

*Including the District of Columbia but not outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," unpublished internal working files, 1992–96. (Originally published as table 3-1 on p. 8 of the complete report from which this article is excerpted.)

Table B.—Types of nonconforming practices

Type of practice	CCD definition	Nonconforming practice
Alternative reporting calendar	October cycle Reporting year begins on the first day of school	June cycle Reporting year ends on the last day of school
Summer dropout	Reported as dropout in grade and year for which the student failed to return	Reported as dropout in grade and year completed
Adult GED	Reported student in this program as dropout	Did not report student in this program as dropout

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," unpublished internal working files, 1992–96. (Originally published as table 3-2 on p. 9 of the complete report from which this article is excerpted.)

school (grades 9 through 12) with a diploma or other credential to the total number of students who leave (as completers or dropouts). High school equivalency recipients are excluded from the completer group because these data are not reported at the school district level, as are dropout and other high school graduation and completion counts.

The report recommends that a method using multiple years of dropout data be used in preference to a synthetic, or reconstructive, rate based on a single year of information. The recommended method is less affected by single-year or one-time changes in dropout rates and more accurately estimates the proportion of public school students who leave high school successfully.

Data source: The NCES Common Core of Data (CCD), "Local Education Agency Universe Survey," 1992–96.

For technical information, see the complete report:

Winglee, M., Marker, D., Henderson, A., Young, B.A., and Hoffman, L. (2000). *A Recommended Approach to Providing High School Dropout and Completion Rates at the State Level* (NCES 2000–305).

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National Education Longitudinal Study: 1988–94: Data Files and Electronic Codebook System CD-ROM: 1999 Re-release

The NCES National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88) is the first nationally representative longitudinal study of eighth-grade students in public and private schools. NELS:88 is designed to provide longitudinal data about critical transitions experienced by young people as they develop, attend school, and embark on their careers.

This CD-ROM provides the public-use data from the NELS:88 base year (1988) through third follow-up (1994) in a format that is compatible with Windows

95/98. No changes have been made to the data, only to the Electronic Codebook System (ECB) software.

For questions about this CD-ROM, contact Aurora D'Amico *(aurora_d'amico@ed.gov).*

To obtain this CD-ROM (NCES 2000–328), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Data File: Common Core of Data (CCD): School Years 1993–94 Through 1997–98 (CD-ROM)

The Common Core of Data (CCD) is the primary NCES database on elementary and secondary public education in the United States. It is a comprehensive, annual national statistical database of all elementary and secondary schools and school districts in the 50 states and the District of Columbia, as well as the outlying areas under U.S. jurisdiction.

This CD-ROM contains three complete databases, which provide CCD data at the school, district, and state levels:

- The school database provides data on each school for school years 1994–95 through 1997–98. Included are general information; numbers of students by grade, free-lunch eligibility, and race/ethnicity; and number of full-time-equivalent (FTE) teachers
- The agency database provides data on each local education agency (generally a school district) for school years 1993–94 through 1997–98. Included are general information; number of students; number of high school completers; and numbers of dropouts by grade, sex, and race/ethnicity. Also included are school district demographic data from the 1990 Decennial Census. Some of the agency fiscal data were obtained from the F-33 survey conducted by the U.S. Bureau of the Census.
- The state database provides data on each state or jurisdiction for school years 1993–94 through 1997–98. Included are general information about the state education agency; numbers of FTE public education staff by category; and numbers of students, dropouts, and high school completers. In addition, detailed state data on revenues and expenditures for public prekindergarten to grade 12 are provided for fiscal years 1994 to 1997.

Along with these databases and related instructions, this CD-ROM also contains a variety of CCD documentation.

For questions about this CD-ROM, contact Tai A. Phan *(tai_phan@ed.gov).*

To obtain this CD-ROM (NCES 2000–370), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Data File: Ten-Year Longitudinal CCD Local Education Agency Universe Survey File: School Years 1986–87 Through 1995–96

The Common Core of Data (CCD) "Local Education Agency Universe Survey" is one of the five surveys that make up the CCD collection of surveys. This survey provides (1) a complete listing of all education agencies responsible for providing free public elementary/secondary instruction or education support services in the 50 states, District of Columbia, and outlying areas; and (2) basic information about these education agencies and the students for whose education they are responsible. Most of the agencies listed are school districts or other local education agencies. The data are provided annually by state education agencies from their administrative records.

This longitudinal file supplements the standard CCD public-use databases by extensively imputing data that were not originally reported by state education agencies. This imputed, linked longitudinal file is thus more useful for testing hypotheses or studying trends over time. It is intended to meet the needs of researchers for a data set describing public school districts over a relatively substantial period of time. The information about district characteristics—such as urbanicity (e.g., large city vs. rural locale); numbers of schools, teachers, and students; and student characteristics—can be used to measure changes over a 10-year period. Because each school district carries a unique identifier, the longitudinal file can be linked with other school or school district data sets.

The data can be downloaded from the NCES Web Site in ASCII, SAS, or SPSS files. Documentation is provided in separate files.

For questions about this data product, contact Lee Hoffman *(lee_hoffman@ed.gov).*

To obtain this data product (NCES 1999–356), visit the NCES Web Site *(http://nces.ed.gov).*

Expanded File Documentation for CCD National Public Education Financial Survey: School Year 1993–94

The Common Core of Data (CCD) "National Public Education Financial Survey" provides detailed data on public elementary and secondary education finances for the 50 states, District of Columbia, and five outlying areas. Financial data are audited at the end of each fiscal year and then submitted to NCES by the state education agencies from their administrative records. After initial submission, states have up to 1 year to send revised data to NCES.

The revised 1993–94 data file was released in 1997. The documentation for this file has recently been expanded, but no data have been changed. Both the data and the expanded documentation can be downloaded from the NCES Web Site.

For questions about this data product, contact Frank Johnson *(frank_johnson@ed.gov).*

To obtain this data product (NCES 1999–359), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: IPEDS Completions: 1996–97

This file provides information on the numbers of degrees and other awards conferred by all postsecondary institutions in the 50 states, District of Columbia, and outlying areas during academic year 1996–97. These completions data were collected through the NCES Integrated Postsecondary Education Data System "Completions Survey" (IPEDS-C) and "Consolidated Survey" (IPEDS-CN). The IPEDS-CN data were extracted and incorporated with the IPEDS-C data. The completions data can be tabulated by level of degree or award, program category or specialty, sex and race/ethnicity of recipient, and other institutional characteristics, as well as by state and region.

The completions data and documentation can be downloaded from the NCES Web Site. The data are in three fixed-length formatted text files, which can be used with most PC software, including statistical packages such as SAS and SPSS, database packages such as Microsoft Access and DBASE, and programming languages such as C and Visual Basic.

For questions about this data product, contact Frank Morgan *(frank_morgan@ed.gov).*

To obtain this data product (NCES 2000–166a), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: IPEDS Fall Enrollment: 1997

This file contains fall 1997 enrollment data collected through the NCES Integrated Postsecondary Education Data System "Fall Enrollment Survey" (IPEDS-EF) and "Consolidated Survey" (IPEDS-CN). The IPEDS-CN data were extracted and incorporated with the IPEDS-EF data. The file includes all postsecondary institutions in the 50 states, District of Columbia, and outlying areas that are eligible to participate in Title IV federal financial aid programs. For all of these institutions, the file provides enrollment data by student race/ethnicity, sex, attendance status, level, and year of study. For the degree-granting institutions (those that offer associate's, bachelor's, master's, doctor's, or first-professional degrees), the file also provides data by student age.

The fall enrollment data and documentation can be downloaded from the NCES Web Site. The data are in five fixed-length formatted text files, which can be used with most PC software, including statistical packages such as SAS and SPSS, database packages such as Microsoft Access and DBASE, and programming languages such as C and Visual Basic.

For questions about this data product, contact Samuel Barbett *(samuel_barbett@ed.gov).*

To obtain this data product (NCES 2000–161), visit the NCES Web Site *(http://nces.ed.gov).*

Baccalaureate and Beyond Longitudinal Study, Second Follow-up: Public-Use Data Analysis System (DAS) CD-ROM

Featured on this CD-ROM are data from the Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997). The B&B study tracks 1992–93 bachelor's degree recipients, providing a wealth of data on their postbaccalaureate enrollment and employment experiences, including experiences with teaching. In addition to student responses, the CD contains institution and transcript information. This is the first CD to incorporate 1997 "Second Follow-up" data into the B&B Data Analysis System (DAS) for Windows.

DAS software provides convenient public access to several NCES surveys, allowing users to produce custom-made tables and correlation matrices by selecting variables of interest from lists. In addition to the B&B:1993/1997 data, this CD also includes all the other NCES data sets that have been made available for public use through DAS. Visit the DAS Home Page (*http://nces.ed.gov/das/*) for a list of available surveys as well as access to the latest DAS updates.

For questions about this CD-ROM, contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

To obtain this CD-ROM (NCES 2000–158), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Data File: Baccalaureate and Beyond Longitudinal Study, Second Follow-up: Restricted Data and Electronic Codebook CD-ROM

This CD-ROM is available only to those who are licensed to use restricted data from the Baccalaureate and Beyond Longitudinal Study (B&B:1993/1997). Included on the CD are complete data for the 1993 cohort of B&B participants, as well as an electronic codebook that provides a description of and assistance in accessing these data. In order to protect the confidentiality of respondents, some of these data are not displayed in the Public-Use Data Analysis System (DAS, available online at *http://nces.ed.gov/das/*). By providing access to the complete raw data (individual records for all variables), this CD permits licensed users to conduct analyses not available through the DAS. If your research requires the raw B&B data, you must justify this need and go through formal procedures to obtain the appropriate restricted-use data license.

For questions about this CD-ROM, contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

For questions about restricted-use data licenses, contact Cynthia Barton (*cynthia_barton@ed.gov*).

Data File: State Library Agencies Survey: Fiscal Year 1998

The State Library Agencies (STLA) Survey is conducted annually by NCES as a cooperative effort with the Chief Officers of State Library Agencies (COSLA) and the U.S. National Commission on Libraries and Information Science (NCLIS). The STLA Survey provides state and federal policymakers, researchers, and other interested users with descriptive information about state library agencies in the 50 states and the District of Columbia. The STLA Survey for fiscal year 1998, the fifth in the series, collected data on 519 items, including governance, public service hours, service outlets, collections, library service and development transactions, electronic services, allied operations, staff, income, and expenditures.

The STLA Survey file consists of three tables in Microsoft Access format. This database file and related documentation are available on the NCES Web Site.

For questions about this data product, contact P. Elaine Kroe (*patricia_kroe@ed.gov*).

To obtain this data product (NCES 2000–317), visit the NCES Web Site (*http://nces.ed.gov*).

Other Publications

The NAEP Guide

Nancy Horkay (editor)

As mandated by Congress, the National Assessment of Educational Progress (NAEP) surveys the educational accomplishments of U.S. students and monitors changes in those accomplishments over time. *The NAEP Guide* provides readers with an overview of NAEP and helps them better understand its philosophical approach, procedures, analyses, and psychometric underpinnings. It acquaints readers with NAEP's informational resources, demonstrates how NAEP's design matches its role as an indicator of national educational achievement, and describes some of the methods used in the 1999 and 2000 assessments.

This guide is designed for state and national policymakers; state, district, and school education officials who participate in NAEP; researchers who rely on the guide for their introduction to NAEP; and the general public. Using a question-and-answer format, the guide addresses 21 commonly asked questions. For each question, both a succinct answer and further details are provided.

Editor affiliation: N. Horkay, Educational Testing Service.

For questions about this publication, contact Janis Brown (*janis_brown@ed.gov*).

To obtain this publication (NCES 2000–456), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

NELS:88/2000 Fourth Follow-up: An Overview

Jeffrey Owings

The National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88/2000) is a major longitudinal survey sponsored by NCES. For this survey, data were collected from some 25,000 eighth-graders and their parents, teachers, and school principals in 1988. The same students were resurveyed in 1990, 1992, and 1994 as part of the first, second, and third follow-ups. The fourth follow-up will revisit these same students in 2000, when many of them will have completed college. This follow-up will add to our knowledge of how school policies, family involvement, teacher practices, intensity of course-taking experiences and postsecondary education experiences affect student outcomes (i.e., academic achievement, persistence in high school, participation in postsecondary education, and occupational experiences).

This 11-page brochure provides an overview of the students sampled for NELS:88/2000 and the types of data collected, as well as the research issues addressed by and the kinds of analyses supported by these data. Also discussed are the formats in which data from the fourth follow-up will be disseminated.

For questions about this brochure, contact Jeffrey Owings (*jeffrey_owings@ed.gov*).

To obtain this brochure (NCES 2000–301), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

The Pocket Condition of Education: 1999

Each year, NCES publishes *The Condition of Education*, a congressionally mandated report that focuses on indicators of the status and progress of education in the United States. The 1999 edition contains 60 indicators, grouped into sections on learner outcomes, the quality of education environments, social support for learning, and educational participation and progress. *The Pocket Condition of Education* is a convenient reference brochure presenting a small selection of graphics and descriptive text from the full report. Abbreviated versions of 25 indicators make up *The Pocket Condition of Education: 1999*.

For questions about this brochure, contact John Wirt (*john_wirt@ed.gov*).

To obtain this brochure (NCES 2000–024), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Privacy Issues in Education Staff Records: Guidelines for Education Agencies

Oona Cheung

Schools, school districts, and state education agencies maintain a large volume of records on education staff. This 30-page document, developed under the direction of the Data Confidentiality Task Force of the National Forum on Education Statistics, is intended to introduce agency and school officials to the basic issues involved in managing staff records and protecting employee privacy without conflicting with the public's right to have access to government records. This document does not provide legal guidelines, however, and the issues discussed here should be addressed within the context of state laws that govern the maintenance and release of public records.

Author affiliation: O. Cheung, Council of Chief State School Officers (CCSSO).

For questions about this document, contact Lee Hoffman (*lee_hoffman@ed.gov*).

To obtain this document (NCES 2000–363), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur (*edith_mcarthur@ed.gov*) or visit the AERA Grants Program Web Site (*http://aera.ucsb.edu*).

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The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek (*alex_sedlacek@ed.gov*).

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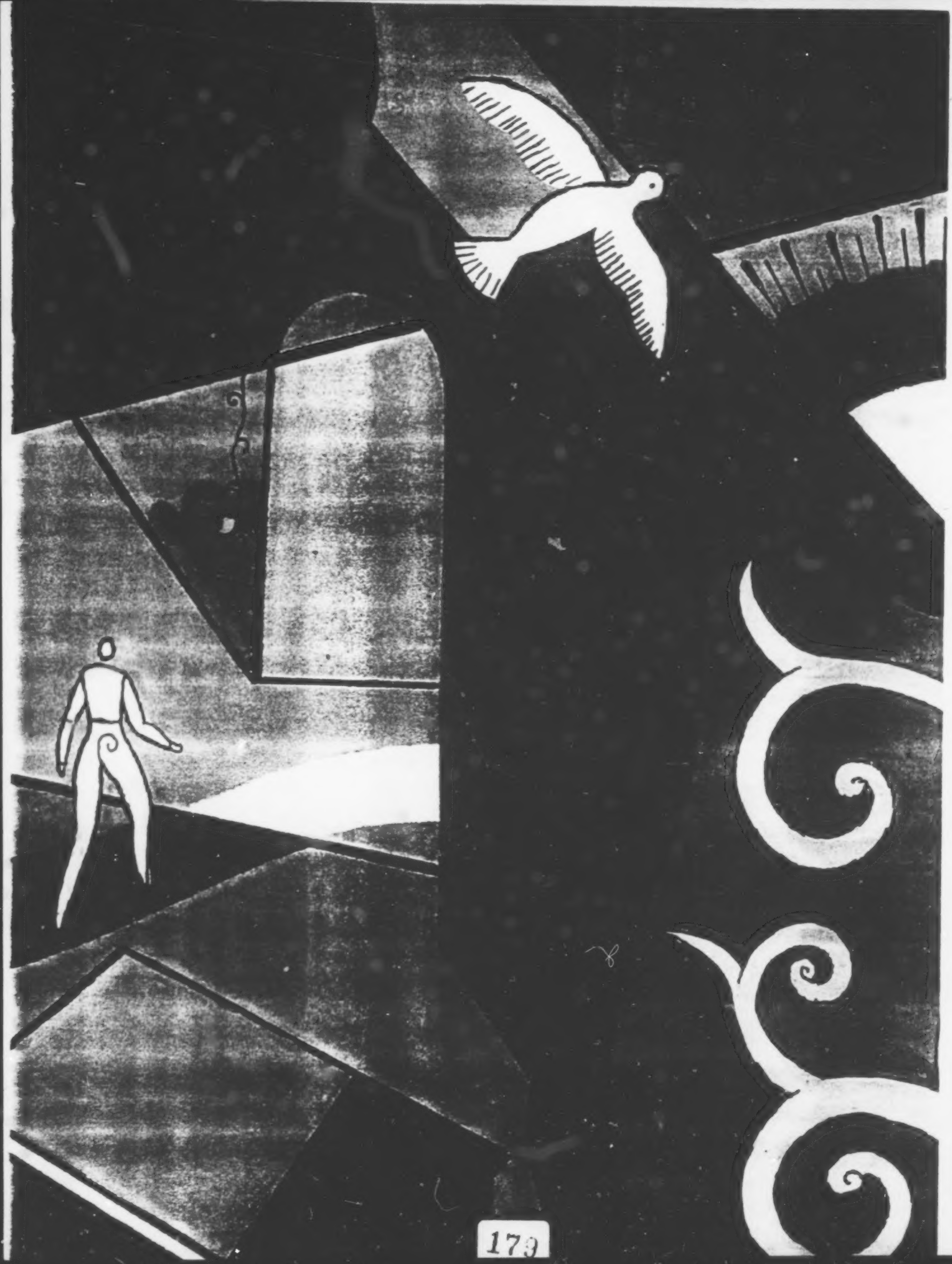

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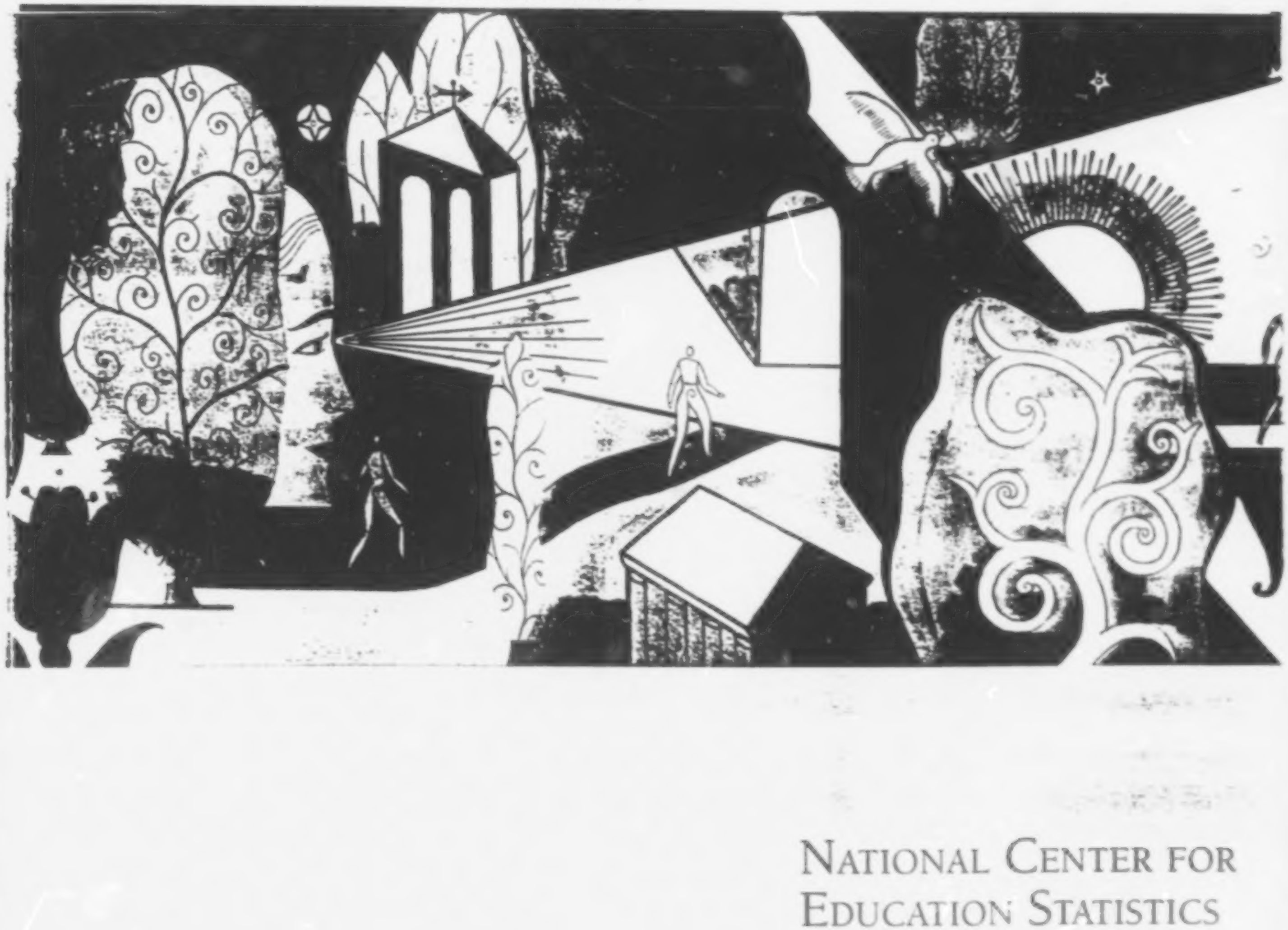
Volume 2 · Issue 2 · Summer 2000



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The NCES Web Site provides information about NCES, as well as access to a wide range of publications and data sets about education in the United States and other nations.

Reach NCES staff

Each article in the *Quarterly* lists the name and e-mail address of the NCES staff member who can answer questions about the content. It is also easy to contact any member of the NCES staff from the NCES Home Page. Under "NCES Quick Links," select "NCES Staff Directory"; then click on the first letter of the person's last name.

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- While supplies last, you can get a single copy of most NCES publications (including the *Quarterly*) at no cost.
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Education Statistics Quarterly
Volume 2, Issue 2, Summer 2000
NCES 2000-606

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EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications will appear in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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NOTE FROM NCES

Marilyn McMillen, Chief Statistician

NCES Universe Surveys

The NCES data collections include a mixture of universe and sample surveys. Each universe survey is a census of all known entities in the specific universe (e.g., all elementary and secondary public schools or all public school districts in the country). In addition to providing basic descriptive data, the universe surveys frequently serve as sampling frames for cross-sectional and longitudinal sample surveys. In total, NCES conducts 12 recurring universe surveys.

One set of universe surveys, the Common Core of Data (CCD), is featured in this issue. The CCD is made up of six separate annual surveys that are sent to state education departments, where data are compiled from state administrative records for the 90,900 public elementary and secondary schools and the 14,500 regular school districts with students. The CCD surveys include public school fiscal and nonfiscal data aggregated at the state and at the school district levels, as well as school-level data. These surveys, plus the biennial Private School Survey (PSS) of data from 27,000 private schools, comprise the NCES universe surveys at the elementary and secondary school levels.

At the postsecondary level, the Integrated Postsecondary Education Data System (IPEDS) includes all 9,600 institutions and educational organizations that provide postsecondary education. As of fall 2000, IPEDS will consist of two annual surveys—a fall and a spring data collection—which will include data on institutional characteristics, completions, enrollments, graduation rates, finance, and the state of residence of first-time students. IPEDS data can be used to describe trends in postsecondary education at the institutional, state, and national levels. For example, researchers can use IPEDS data to analyze data on enrollments and completions of students at different levels by sex and race/ethnicity and by characteristics of postsecondary institutions such as tuition and room and board charges and institutional revenue and expenditure patterns. IPEDS data collection will be entirely Web based beginning in fall 2000.

The Library Statistics Program includes one biennial and two annual universe surveys. The Public Libraries Survey is an annual survey of 8,900 public libraries, with data ranging from usage, size of collection, staffing patterns, and finances to electronic access. The annual State Library Agencies Survey provides descriptive data on services related to library development and the administration of federal funds for libraries. The Academic Library Survey is a biennial universe survey that collects data from the 3,800 degree-granting postsecondary institutions to provide national and state overviews of academic libraries on topics similar to those reported for public libraries.

NCES Data Cooperatives

To facilitate the collection of data, NCES coordinates three congressionally mandated cooperatives—on elementary and secondary education, postsecondary education, and libraries. The cooperatives are established in law "for the purpose of producing and maintaining, with the cooperation of the States, comparable and uniform data on elementary and secondary education, postsecondary education, and libraries, that are useful for policymaking at the Federal, State, and local levels." To do this, "the Commissioner may provide technical assistance, and make grants and enter into contracts and cooperative agreements" (P.L. 103-382, sec. 410).

Although the three cooperatives operate separately, they share a number of common features:

- *Membership:* Each cooperative includes members from federal, state, and local education agencies with responsibilities for collecting and reporting education data. The members include data providers, data users, government employees, and representatives of public and private institutions and associations.
- *Utility:* The mission statement of each cooperative stresses the goal of meeting policymakers' needs for data that support policy development, implementation, and evaluation.
- *Comparability:* In order to be useful, the data must be of high quality and must be comparable across reporting units; thus, quality and comparability are also keystones of each cooperative's mission statement.
- *Coordination:* To meet these goals, each cooperative recognizes the need to work together to develop and adopt data standards, including common definitions, standards for the electronic exchange of data, guidelines to promote data collection, and data sharing processes that appropriately preserve confidentiality while permitting access and minimizing burden.

Each cooperative engages in projects designed to identify and define the core data for specific topics. These definitions are formalized in handbooks that provide frameworks to promote the coordination of data collections. At this point, the National Forum on Education Statistics (the elementary and secondary education cooperative) has released handbooks on core data elements, privacy, the use of technology, financial accounting, student data, and staff data. The National Postsecondary Education Cooperative has released one handbook on human resources and related reports on technology, student access, and outcomes data. The Federal-State Cooperative System for libraries is working on a Web-based project on data definitions. This definitional work, as well as additional projects designed to explore and promote the use of technology for data collection and data exchange, is supported by NCES.

FEATURED TOPIC: THE COMMON CORE OF DATA

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Introduction: The Common Core of Data Surveys

Lee Hoffman, Elementary/Secondary Cooperative System and Institutional Surveys Program Director

Featured in this issue is the Common Core of Data (CCD), one of the NCES universe survey systems. This introduction and the two invited commentaries that follow provide some context for the CCD publications in this section.

The Common Core of Data (CCD) survey system is among the oldest of the federal education information collections, and one that has benefited enormously from the last decade's developments in information technology. Technology, however, probably has had as much impact through the changes in state and school district systems that collect and report data to the National Center for Education Statistics (NCES) as through its direct effects on the CCD. As the survey collection has moved from reliance on paper forms that were entered manually into a mainframe computer to file transfer over the Internet, both time and errors have been reduced.

History of the CCD

The earliest responsibility of the CCD—and its predecessors—was to make available a list of public schools and the local education agencies that managed them. In the 1960s, publication of the *Directory of Public School Systems* began to follow a regular schedule as Part II of the Department of Education's Education Directory series. The corresponding universe of school names and addresses was maintained as an internal, unpublished listing. The next decade saw this system expand into the Elementary and Secondary Education General Information System. ELSEGIS was a more ambitious data system, collecting and publishing more extensive information on public schools and education agencies.

The current design of the CCD was introduced in 1986–87, with the first data of publishable quality collected in the following school year. In short order, the survey system acquired characteristics that distinguish it from its precursors and give the CCD its current identity.

Unlike earlier education directory systems, the CCD began in the late 1980s to edit the school and agency universe files with the same attention that had formerly been directed toward the state-level data collections. (These latter continued to stand as the official state statistics for the reported data.) At about the same time, the CCD discontinued the then-common practice among commercial listing services of maintaining "open" files: that is, allowing information to be updated as it became available, with the result that a file could include data from different years for different states. NCES decided that all CCD data reported by states would be those that were current as of October 1 of the school year. Old data could not be carried over from one year to the next, which made issues in the timeliness of state reporting more crucial than they had been in the past.

The CCD of the late 1980s expanded the content of the surveys as well as established new reporting and editing conventions. This expansion—and the process through which states agreed to report data items with common definitions—was accomplished in partnership with the Council of Chief State School Officers. CCSSO is a professional association representing the heads of state public education agencies, and it has a longstanding role in brokering the data interests between state data reporters and federal data collectors. In 1985, CCSSO began, under contract to NCES, to examine the completeness and comparability of data repored on the CCD as it was then structured. The project initiated the practice of negotiation, consensus, and verification between state agencies and NCES that continues today.

The Survey System

The CCD is a series of six separate annual data collections reporting information drawn from the administrative records of state education agencies. It encompasses the universe of public schools and local education agencies[1] and is limited to elementary and secondary school data.

Two surveys provide financial data. State-level information about revenues and expenditures is reported on the "National Public Education Financial Survey." The "Annual Survey of Government Finances: School Systems" collects comparable information about individual local education agencies. More commonly known by its form number (F-33), this survey is supported jointly by the Bureau of the Census (Governments Division) and NCES.

Nonfiscal information about students, staff, and institutions is drawn from three CCD surveys. The "State Nonfiscal Survey of Public Elementary/Secondary Education" is the source of official state-level counts of public school students, teachers and other staff, and high school completers.

The "Local Education Agency Universe Survey" provides information about approximately 16,500[2] local agencies, in addition to the state education agencies, that are responsible for providing public education or services that support it. This survey includes information about institutional characteristics, numbers of education staff, numbers of students participating in selected education programs, dropouts, and high school completers.

The "Public Elementary/Secondary School Universe Survey" is similar. In 1997–98, it encompassed more than 90,000 public schools. Like its state and local agency counterparts, the school universe survey reports institutional characteristics and the numbers of teachers, student enrollment by grade (with detail on gender and racial/ethnic category), and students participating in selected education programs.

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[1] Local education agencies include school districts, which manage schools and oversee the provision of education services to students within their jurisdiction, and other agencies that may provide specialized administrative, program management, data processing, or other services to school districts. For example, several small school districts in New England might designate one as the "supervisory union" responsible for administrative services to the group.

[2] In addition to the 14,500 regular school districts, this number includes special service districts.

All of these collections report data that are at least 1 year out of date—the information collected by the state that reflects conditions on October 1 may not be reported to NCES until the following September. The "Early Estimates of Public Elementary/Secondary Education Survey" offers a sample of more current data. This survey reports, before the end of each school year, the estimated numbers of students and teachers, high school graduates, and revenues and expenditures for education.

Uses of the CCD

The CCD is accessible through a number of print and electronic products that reflect increasing numbers of uses and users. Its historic function as a directory of public schools and education agencies remains, and the CCD serves as a mailing list, institution registry, and sampling frame.

A *Directory of Public Elementary and Secondary Education Agencies* is printed each year.[1] The publication is also available on the NCES Web Site. The Internet has also enabled NCES to maintain a Public School and School District Locator, through which users can search for individual schools or districts and secure basic information such as address, telephone number, state and NCES identification codes, and some student and teacher data. The NCES identification code is important because it is used by applicants for Schools and Libraries Corporation e-rate (universal rate) telecommunications discount grants and for grants under the Safe Schools/Healthy Students program.

A Web product, the School District (Agency) and Public School Name and Address Files, is available. Vendors and marketers are particularly likely to rely on this product to prepare customized lists for their mailings.

The school and agency universe files are used in drawing samples for national studies. The CCD has been used recently in drawing samples for the NCES Schools and Staffing Survey and the National Assessment of Educational Progress. Its component school districts serve as the framework to which demographers are mapping extensive demographic data from the 2000 Decennial Census.

The CCD is a source of descriptive statistics about public schools and districts. This can be an important function for some education programs—for example, the state per pupil expenditure drawn from the "National Public Education Financial Survey" is used to calculate allocations for Title I, Impact Aid, and other federal programs. Descriptive statistics are reported for general use through short Statistics in Brief publications (three of which are featured in this section) and through more detailed reports, such as the *Characteristics of the 100 Largest School Districts in the United States*, as well as other publications. Each edition of the NCES *Digest of Education Statistics* incorporates CCD data in 40 or so of its tables. The CCD serves as the only annual universe report of the numbers of students enrolled in public schools, the numbers of high school diplomas awarded, and the numbers of public school teachers. For the more than 40 states that participate in the dropout data collection (the number is growing over time), the CCD provides comparable statistics about how many students drop out of school each year.

One relatively new use of the CCD is that of research database. In the 1999 *Condition of Education*, the CCD was used to analyze changes in the racial/ethnic isolation of students in public schools over a 10-year period. This application of the CCD has been aided by work to reconstruct lost documentation and by making archived files available through the International Archive of Education Data. It has also relied on the development of a longitudinal education agency research file that matches school districts over time and includes imputed data for a number of missing responses.

Issues in Quality

Administrative records data have had limited use in research and policymaking because they may not be considered trustworthy. The nonsampling errors to which administrative records are vulnerable include incomplete coverage, discrepancies in data definitions, varying periodicity, and inability to verify data quality.

A coverage evaluation of the elementary/secondary education agency universe concluded that the CCD did a good job of representing traditional types of education agencies (Owens 1997); a companion study of school coverage is currently in review. Nontraditional agencies, particularly those not administered by the state education agency, were more likely to be missed. These evaluations set the context for discussions with state data reporters about how to improve coverage and have led to changes that will ostensibly improve the surveys' representation. As one example, schools and districts under the jurisdiction of the Bureau of

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[1] The current edition of the *Directory* (McDowell and Sietsema 2000) is described later in this section, on p. 65.

Indian Affairs (BIA) had been inconsistently reported by states. BIA schools and districts are now excluded from state reports and published as a separate reporting entity. Again, there was an explicit effort in the 1998–99 collection to improve the coverage of charter schools, whose governance structure varies widely across states. This was partially successful in capturing more schools. However, as long as the CCD continues to draw upon the administrative records of state education agencies, there will be some schools and agencies that fall outside its net.

Respondents may not follow definitions uniformly. For example, classification evaluations of the CCD, and subsequent technical review panels, found that states disagreed about when to classify an education agency as a supervisory union, a regional service agency, or a state operated agency. The survey continues to struggle with crafting a feasible and professionally acceptable definition of a vocational school. Definitional agreement in reporting has been approached in several ways. Topical technical review panels uncover possible sources of confusion (or inapplicability) in current item definitions, with resulting guidance to state data reporters through the CCD Home Page, direct mailings, and annual training. For the number of dropouts, a particularly high-stakes statistic, each CCD coordinator is questioned annually about the state's adherence to the CCD definition and reporting procedures.

Periodicity has been addressed by arbitrarily setting October 1 as the "as of" date for CCD counts. Current-year statistics are to be reported as they were observed on October 1; past-year statistics, such as the number of dropouts or the number of students receiving migrant education services, are reported as they were known to be on that day. Information collected from state CCD coordinators in the 1991–92 introduction of the dropout statistic found that the data from most states had been collected within a week of October 1, but that a few states reported data that had been collected 4 or 5 weeks earlier or later. This issue appears to be one that is improving due to developments in information technology. In past years, for example, the sum of students in the reported racial/ethnic categories often differed from the reported total of students—purportedly because the counts were taken at different times. Today this problem does not arise on the state-level survey.

The quality of data is promoted by attention to the conditions under which data are collected and reported—conditions that were discussed in the preceding paragraphs—and by editing data once they are received. A recent evaluation concluded that the CCD survey processing included more edits than necessary, based on the number of data changes in response to edit challenges (Hamann 1999). The number of edit challenges reported to state CCD coordinators has been reduced. The "National Public Education Financial Survey" continues to send prior-year comparisons and add checks on all subtotals to the respondents, in part because sizable federal allocations are affected by the numbers. The state nonfiscal survey, which is Web based, incorporates soft edits that respondents can override with an explanatory note. Similar editing software for the school and education agency universe surveys is available to states. More comprehensive Web-based versions of this software are expected to be available by August 2000.

Recent, Ongoing, and Upcoming Developments

The revised CCD school and education agency universe surveys that were introduced in the 1998–99 school year added a number of features that were intended to make the CCD more useful for sampling and program uses. The idea of "flags" was introduced. In addition to its traditional type code (e.g., regular, vocational), a school is now flagged as magnet, charter, or Title I, as appropriate. Additional detail provides school membership by gender and racial/ethnic category within each grade, and there are now reports of the numbers of students receiving migrant and limited English proficiency services.

The school locale code, originally developed by CCD staff at NCES, has been refined in the last year. The variable identifies the degree to which a school is located in an urban setting, with codes ranging from "large city" to "rural." The addition of a "location address" (if this differs from the mailing address) has improved the assignment of locale codes on the basis of Census place. For example, if a rural school receives its mail at the post office in a neighboring town, the location address will ensure that the school is coded as "rural" rather than "small town." And, the existing rural category has been broken into "rural (outside a metropolitan statistical area)" and "rural, urban fringe (within a metropolitan statistical area)."

CCD staff, in cooperation with state education agencies, have also reached consensus on a high school completion rate that is being introduced with 1998–99 data. This rate is the proportion of students leaving school who leave as completers. It is the number of high school completers in a given year divided by the number of completers plus the number of dropouts from grades 12, 11, 10, and 9 in the current and 3 preceding years, respectively.

Because of the importance of the environment in which CCD data are first produced, NCES supports technical assistance activities that are peripheral to the CCD. These include comprehensive handbooks for elementary/secondary student and staff data. The *Student Data Handbook* was revised within the last year and will be updated annually.[3] The *Staff Data Handbook* (Malitz 1995) will be revised by January 2001, with the same provision for annual review and revision. *Financial Accounting for Local and State School Systems, 1990* (Fowler 1990) is undergoing substantial review in response to developments in program interests (e.g., better ability to reflect expenditures for technology or school safety) and new reporting recommendations from the Government Accounting Standards Board.

In the area of information technology, NCES participates actively in the development of national data standards. The X-12 subcommittee of the American National Standards Institute approves standards for the electronic exchange of information about people. The X-12 subcommittee has approved the format for electronic student record exchange developed by NCES and the members of the Center's elementary and secondary education and postsecondary education data cooperatives. At present, NCES participates in X-12, continues a project to develop electronic data interchange (EDI) standards for the CCD, and has joined an education and vendor group that is creating extensible markup language (XML) standards for the information typically collected and used by schools and school districts.

In the near future, NCES will be studying ways to better exploit the use of electronic data exchange in collecting and reporting administrative records data. The challenge will be to increase the timeliness of CCD data without threatening quality or adding to response burden. This effort can potentially challenge several of the CCD's basic operating principles—for example, one suggestion has been to improve timeliness by publishing directory information before the statistical information is available—but it will result in a better and more responsive survey system.

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[3] The current edition of the *Student Data Handbook* (Cheung and Young 2000) is excerpted later in this section, beginning on p. 66.

Invited Commentary: What Do School Districts Have in Common With the Common Core of Data?

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Introduction

The Common Core of Data (CCD) is an organized set of information used throughout the United States to examine school, student, and teacher data. The CCD is also used to predict trends to assist policymakers. These uses of the CCD are almost certainly known to most readers of the *Education Statistics Quarterly*. Throughout the federal and state departments of education, the CCD is recognized as an important tool for educators and community stakeholders.

However, when representatives of school districts are asked about the CCD, the answers are less certain. Many have not even heard of the CCD. Does this mean that the data are not used by personnel at the district level? Not necessarily. CCD data are used; personnel just may not know the source of the information.

Even if school and district personnel have not heard of the CCD, they do know that they are required to collect information and send it on up "to the next level" of the education hierarchy. It seems as though, contrary to the law of gravity, *the data flow up*. On the other hand, people who are using the CCD may not be aware of the processes involved in getting the data to the state departments of education before they go to the National Center for Education Statistics (NCES) for the creation of the CCD.

One of the major purposes of this article is to discuss some of the processes involved in the data flow from America's schools through America's school districts and to examine what is involved in making the data as accurate as possible. Another purpose is to discuss how these data, now in the form of information, can flow back down to districts and schools and how that flow can be increased.

Where Do the Data Come From?

The procedures leading up to the moment that a school district sends the data to the state or county agency are complex. A supportive internal infrastructure is required. This may seem simplistic, but each piece of data is gathered, or collected, in one way or another, and reviewed by staff to make certain that it is correct. Sometimes the data are collected through a sophisticated wide-area computer network connecting schools to a central office. Sometimes the collection takes place using diskettes. Sometimes there is a paper collection. In all cases, however, the data that are collected have to be validated and checked for accuracy.

In the Los Angeles Unified School District, for example, more than 700,000 students will be reported on the date of the district "snapshot" in the fall of 2000. Information about each student and about teachers and schools has to be reported accurately. It is true that LA Unified is unusual in that it is the second largest district in the country. However, every district in the United States is responsible for collecting accurate information for each of the students, teachers, and schools within its jurisdiction. Every district has to go through the process of data collection and validation.

The Infamous "Data Burden"

This reporting process is not without difficulties. The goal is to report accurate data. But what happens when a data element is missing or makes no sense? When an error is discovered, it must be corrected. If the error results from data entered at a school, that school will be contacted. The school could be contacted by telephone, or might receive a report indicating what needs to be done to fix the problem (or, usually, more than one problem). In any case, the information must be corrected.

For those in the business of collecting data, this doesn't sound like a big issue. It seems clear: the school has made an error and must correct it. But the business of schools is not data collection or data entry. The business of schools is educating our students. Anything that detracts from this central task is not appreciated by school staff. They might complain that, to make such corrections, they have to take time away from responsibilities that appear to be more closely related to the education of the students in the school. Certainly, the correction of the data will take staff away from other tasks that need to be done.

Clerical staff in school offices are probably responsible for data entry and will be asked to make any necessary corrections. These office clerical staff are also still responsible for all those things we remember from the days when we were in school. However, the addition of computers in these offices, connected to databases with thousands of data elements, has imposed added responsibilities on these staff. Someone has to enter the data. In addition, in many districts, the number of clerical staff in school offices has remained static over the years, while the number of data elements that need to be entered into the computer systems has increased. Thus, when someone from the "central office" calls or writes to the principal stating that data were entered incorrectly, these staff will not be happy.

These problems exemplify the infamous "data burden" imposed on schools. The burden is not merely the requirement to correct one data element. School personnel are responsible for entire databases. It is not unreasonable to assume that a moderately sized school might be responsible for more than 100,000 data elements. The burden at the school site is apparent when we recognize that staff are responsible for entering all of these data elements and updating them accurately.

Once the data are received from the schools on the day of the "snapshot," there must be other staff in place who can review the initial submission of data, validate the information, and assist the schools in making corrections. This is the "data burden" at the school district level. Although no amount of technological advance will make it go away completely, one of our tasks is to reduce this burden as much as possible.

In fact, it is perceived that the "data burden" is decreased for a district and its schools when staff are able to see why data are collected. If the data flow down, back to the schools and districts in the form of information that can be used, staff will see the benefit from the work that they do to enter and validate the data. Information based on the data must get back to the place where the data were entered, or else staff will believe that the burden is too great. And, if this is the case, data accuracy will also suffer.

Using the CCD

The phrase "data comparability" is used so often that it has almost become a mantra. The fact that the data in the CCD are comparable enables district staff, and other members of the education community, to be advocates for increased funding or for a redistribution of resources in states based on data, not on simple anecdotal stories.

The movement toward "accountability" in all aspects of education has grown. Schools and school districts across the country are being held accountable for the results of their instructional programs. As Californians know, their method of financing education has changed. Since a vote of the populace some years ago reducing the local property taxes, expenditures for education have not kept pace with expenditures in many other states.

According to information from the 1998–99 CCD, California ranks near the bottom in per pupil expenditures for education in the United States and it has the second highest student/teacher ratio. These facts are important both to educators and to students in California. These data have also been used by educators to point out that if districts in the state are to be held accountable for the results of instructional programs, education needs to be funded more adequately.

To the credit of the California state government today, indications are that funding for education in the state will greatly increase in the near future.

Other examples of comparisons that can be made using the CCD are

- the number of migrant students in a school district;
- the number of limited-English-proficient (LEP) students in language programs, and
- diploma recipients by racial/ethnic category and sex.

These comparisons can be made between school districts for the 1998–99 collection. This information, among other available data within the CCD, is a valuable tool that can be used to examine trends and to plan for the future.

Dissemination of the Data

Earlier, it was noted that many school and district personnel do not know about the CCD. In the past, dissemination was not adequate and information about the CCD often did not filter back down to schools and districts. This is changing rapidly. In recent years, the CCD has been placed on CD-ROM, greatly expanding awareness of it in the education community. The CD-ROM provides tools that enable users, not just computer programmers, to examine and compare the data.

But the real change in the dissemination of the CCD has occurred because of the growth of the Internet. Through the Internet, especially the World Wide Web, the CCD is available to schools, districts, and the public at large. Recently, the NCES Web Site was extensively revised. By going to *http://www.nces.ed.gov/ccd/aboutccd.html*, one is led through an explanation of the CCD and the set of surveys. Reports are available along with data sets.

Conclusion

Some people still believe that data are collected solely for the purpose of collecting: that is, data being collected for the sake of data and for nothing else. But staff involved in data collection at the state and national levels want to make the results of that collection available to those who are responsible for gathering the information at the school and district levels. Now, with the CCD easily accessible to educators throughout the country, people can see the results of their labor, and they can compare these results with those of other states, districts, or schools.

It is still true that data flow up. But the information and data sets that result from the data entered at schools also flow down. School district personnel responsible for making decisions will use the CCD as the dissemination improves through the use of the Internet. The data will be used because they are comparable and dependable. They are comparable because of the work of NCES. They are dependable because of the work and dedication of the education community: from schools, to school districts, to state departments of education.

Invited Commentary: Common Core of Data: A Partnership of Federal, State, and Local Interests

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Council of Chief State School Officers (CCSSO)

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Introduction

The interests of sound policies and decisions for governing public K–12 education in the United States are well served by the Common Core of Data (CCD), which is administered by the National Center for Education Statistics (NCES). The CCD is a good example of the critical importance of effective collaboration and partnerships between local, state, and federal levels of government. The basic data that define public schools in the United States exist because local school districts, state education agencies, and the U.S. Department of Education work together to establish common definitions, maintain regular data collection and reporting on core measures, and uphold policies on accurate, honest data.

The critical role of the CCD system for education policies at each level of our education system cannot be overestimated. The Department of Education has monitored some of the data elements of the CCD since the Department's inception in 1867. The current CCD system has experienced change and will experience further rapid change. Three main points on the uses of the CCD in education policy are emphasized in this commentary:

- The CCD offers important building blocks for education decisions as well as key starting points for other education surveys and data systems at all levels.
- The CCD depends on timely cooperation among educators and managers at each level of public education, and the mutual dependence underlying the common system must be recognized by parties at each level for the system to function effectively.
- Movement toward an electronic integrated data system will incorporate the current functions of the CCD and significantly expand the usefulness of the data currently reported.

Recent Issues With the CCD

The data collections contributing to the CCD cover the most basic elements that describe education in the United States, including student enrollments, teachers, demographic characteristics, schools, revenues, and expenditures. School systems across the country play an active part in ensuring that the data meet definitions and specifications established through the leadership of NCES. Over the past decade, improvements have been made that have strengthened the CCD system. Regarding the usefulness of CCD information for education policy, several issues can be identified.

Since the 1980s, one of the emphases for the CCD and other NCES data collections has been increasing the reliability and consistency of data. Under the leadership of Emerson Elliot, former NCES Commissioner, the statistics provided by NCES have improved when judged against these criteria. Some areas of data collection within NCES have expanded, such as the National Assessment of Educational Progress (NAEP), longitudinal studies, and the Schools and Staffing Survey. The work with the CCD has focused primarily on improving the quality of data, although several data items have been added to the system from existing administrative records. In the early 1980s, NCES was criticized for the lack of consistency, completeness, and timeliness of data and statistics. In the past decade, NCES has worked with states and school districts in a cooperative, collaborative manner to improve the quality of data and has focused on ensuring that reports are available on a regular, timely schedule.

Educators, administrators, and policymakers may have some frustration with the CCD on the issues of usefulness and flexibility. For example, the CCD does not collect or report any data that can be disaggregated or analyzed by program, curriculum, or subject area. State agency users, professional organizations, and local educators could see enormous potential benefit in being able to track trends in full-time-equivalent (FTE) teachers by teaching assignment and size of school. A survey that was discontinued in the 1980s tracked secondary course enrollments, and many potential users would argue that these data would now be very important to have in common across states and districts. In the CCD, detailed data are collected by school for student characteristics such as race/ethnicity and poverty. The data can be accessed by school code, but they have not often been linked to educational measures from other national or state-level surveys such as student achievement or course enrollments. This is now an area of increased attention by NCES, and linking projects would increase the usefulness of the CCD.

Another issue is the method of reporting and availability of data. For example, the CCD collects detailed data at the district and state levels. Until the mid-1990s, aggregated statistics from the CCD were available in a small number of publications, notably the *Digest of Education Statistics* and *The Condition of Education*, as well as reports summarizing each of the CCD data collections' findings. Regular mailings were made to K–12 education agencies, postsecondary education institutions, and libraries. However, many other potential users often were not alerted to the availability of data, how they could be obtained, or how they might be used.

In the late 1990s, the advent of the Internet and the World Wide Web provided new avenues for CCD data to be made available to potential users, and methods of accessing data improved vastly. In addition, a series of short publications (Statistics in Brief) has alerted many educators and policymakers to the applications of the CCD series as well as other NCES surveys.

Access to data and information has become an expectation in American society and the world. The key products from the CCD need to continue to be disseminated in creative ways. New means of accessing these important data and statistics should become available as more users become attuned to methods of combining data from several sources for the purposes of educational policy analyses and producing reports on progress in our schools.

Policy Applications of the CCD

What are the strengths of the CCD as educators and policymakers look into the 21st century and consider the priorities for spending to improve the infrastructure of educational systems? From the viewpoint of policy applications, I would elaborate on three main points.

1. *CCD as building blocks for education decisions and data systems.* States, local systems, and the public depend on the common definitions and data collection procedures provided through the CCD. With the refocusing on data quality in the 1980s, NCES has invested in a number of consensus-building projects to ensure that K–12 education has a common statistical foundation. The CCD depends on state and local funding and data systems to collect data. However, NCES efforts ensure that data collection and reporting on central elements of educational systems—including school, teacher, administrator, student, graduate, and dropout—significantly ease the jobs of data managers at all levels and key users such as school boards and state legislatures.

Educational systems increasingly operate in a national market for students, teachers, and administrators. Decisions about school budgets and allocations in many jurisdictions involve the largest portion of spending of public tax dollars. Thus, decision makers have come to rely on comparable statistics from one school district to another and from one state to another. The CCD has proved an important starting point for data collection, analysis, and reporting by local school districts and states across the country. As school systems begin to redesign education data systems to meet the many new needs for data, NCES data definitions, coding systems, core data collections, and methods of aggregation and reporting provide the basic foundation for construction of education data and statistics.

The development of a common national dropout statistic in the 1990s provides a useful lesson in the role and relevance of the CCD. The reauthorization of the Elementary and Secondary Act in 1987 (the Hawkins-Stafford Act) called for a number of improvements in national education statistics. Among the provisions of the act was the creation of a comparable, reliable figure on the school dropout rate. Previously, school systems and states reported statistics on dropouts using a variety of methods of defining and counting a school "dropout" and various reference groups and periods of time to consider in computing a dropout "rate." Constituencies and interest groups relied on a particular definition or rate of dropout, with some methods of computation producing much higher or lower rates than others. NCES sought expert advice from highly respected statisticians and educators in finalizing a common definition and began requesting dropout statistics from states in the early 1990s. Through the CCD system and the deliberative consensus process for developing a new data collection element "in common" among the states, there has been a gradual movement to adopt the CCD definition of dropout. As a result, data systems used in states have adapted to require schools to track and report dropouts using the recommended procedures.

The NCES/CCD dropout statistic is not yet universal. Even when states agree to the new definition, some states and school districts do not have adequate data systems for collecting the data and conducting the necessary data edits and checks at the student level that are needed to meet the NCES/CCD definition. Thus, they are lacking the data needed for computing the standard rate. However, the common definition and reporting methods that were initiated, promoted, and supported through the CCD are likely to displace the noncomparable, local definitions of dropout. While the local definitions may meet some local reporting needs, they will not provide for methods of evaluating policies established to address the dropout problem that can be compared to policies and programs in other local systems and states.

2. *CCD based on cooperation and mutual dependence.* Many of the decisions regarding CCD surveys, definitions, and procedures have been made through cooperation with states and districts. The National Forum on Education Statistics, created a decade ago, consists of representatives from states and federal agencies involved with data collection and reporting of education statistics. Committees of the Forum have operated effectively to provide input into decisions about the CCD and other NCES data collection series. The Forum is part of the National Cooperative Education Statistics System of NCES with state departments of education. State education staff are supported with travel and expense funds for conferences and meetings with NCES staff, contractors, and others to plan and carry out the CCD. In turn, states collect and report data aggregated to the school, district, and state levels. NCES also sponsors a fellows program for state and district staff and provides some financial assistance to states to develop and improve their education data systems.

The cooperative approach to operation of the CCD has obvious benefits both for states and for NCES. It moves the data and statistics program toward a joint venture for data quality, accuracy, and timeliness. This approach does depend upon the cooperative intent in federal-state relations to ensure that data systems receive appropriate priority at the state and local levels. States still must allocate funds to support state-level design, management, and staffing of data systems, and they must provide leadership toward improving data quality with local school boards and administrators.

The cooperative system for the CCD has reaped real benefits in improving data quality and advancing the linkages between federal data collection and reporting and state and local data systems. Federal leadership of the cooperative system has been a plus. Two areas now need concentrated effort in the federal, state, and local partnership to improve the usefulness of the CCD for policy purposes. First, timeliness of state and district reporting needs to be improved. For example, CCD nonfiscal data are now available at the close of the following school year. High standards for quality and completeness have been applied, but problems in some states continue to slow the release of complete 50-state data sets. NCES and other components of the Department of Education need to continue to take a strong leadership role in assisting state and local systems to improve their data systems and maintain deadlines. States need to retain well-qualified staff who can maintain continuity in data collection and reporting and ensure that standards of quality and timeliness are upheld.

On a broader level, a second area of need for federal, state, and local partnership is to improve state and local reports with education statistics and indicators of progress. All states now produce state accountability or indicator reports, and a majority of the states report indicators at the district and school levels. Many of the models for reporting provide basic statistics on student and teacher demographics, education finance, and student achievement results. Relatively few states use a range of data sources and data collections to provide reports that are useful to a variety of audiences, including decision makers, teachers, administrators, and parents. An area for further federal-state collaboration, with guidance from the National Forum on Education Statistics, should be in the areas of reporting, data analysis, and uses of data.

3. *Movement toward an electronic integrated data system.* The cooperative effort toward data and data system improvement that has been carried out through the National Forum on Education Statistics may change the nature of how the CCD collects and reports information. In the early 1990s, a group of state education agency and school district staff joined with postsecondary admissions officers in a Forum project to develop a format for the electronic transmission of student records. This system exists today as SPEEDE/ExPRESS (Standardization of Postsecondary Education Electronic Data Exchange/Exchange of Permanent Records Electronically for Students and Schools). The transaction sets making up SPEEDE/ExPRESS are approved by the American National Standards Institute (ANSI) and thus serve as national standards for electronic information exchange. With representation from the Forum, NCES remains an active member of ANSI's subcommittee for electronic data interchange. Through this activity, NCES has recently joined with states, districts, and the private sector in the Schools Interoperability Framework project, an effort

to develop extensible markup language (XML) formats for a range of information needs and data elements common at the school district level.

NCES has sponsored other pilot projects in the area of electronic data collection and transmission, often within the framework of the CCD data elements and always in collaboration with states and school districts. In the mid-1990s, several pairs of school districts that considered themselves "trading partners" for student enrollments tested the usefulness of SPEEDE/ExPRESS for forwarding migrant students' education records. Addressing another need, NCES sponsored work in several states belonging to the Southern Regional Education Board. The project developed a multistate collaborative system for collecting, analyzing, and reporting education staff data from multiple administrative record systems (such as data on teacher certification, continuing education, and retirement). It demonstrated a regional approach with the capacity to model teacher supply and demand for state policy planning.

NCES also developed and pilot-tested with states a system for harvesting CCD data from state record systems. Although never widely adopted, this early effort at electronic data aggregation and reporting addressed many of the issues that current electronic data systems have had to address, including data comparability, security in electronic transmission, hardware compatibility, and student privacy rights.

Only one CCD survey (the "State Nonfiscal Survey of Public Elementary/Secondary Education"), which reports state-level nonfiscal data, is a fully Web-based collection at this time. The remaining surveys may develop Web-based collection strategies in the near future. Because of the increasing need for timely information on education outcomes, other programs in the federal government are looking at the usefulness of existing state and local data for creating an integrated electronic reporting system.

For example, a current pilot project of the U.S. Department of Education's Planning and Evaluation Service is working with a small group of states to test an integrated approach to reporting from state data systems to federal education agencies. The Council of Chief State School Officers (CCSSO) has provided assistance and advice to the project. The goal of the initial two-state test with Nebraska and Oregon was to determine if data reporting needs for a number of elementary and secondary education programs could be met by accessing the data systems maintained by states. The Integrated Performance and Benchmarking System (IPBS) is now being expanded to six more states: Delaware, Illinois, Massachusetts, Pennsylvania, South Carolina, and Texas. The IPBS, which is part of the Department's overall information improvement strategy, is envisioned as an Internet-based system for gathering data from states about federal program activities at the school and district levels. The approach being tested by IPBS represents a new model that could be applicable for future use with CCD collections. The National Forum on Education Statistics could provide needed review and discussion of the IPBS model for electronic collaboration on education data.

Conclusion

From the perspective of policy use, the CCD is valuable not only as a source of information, but also as a model for federal-state cooperation that can improve data collection, quality, and use overall. If the past 10 years are a good predictor, the CCD survey system can be expected to grow and influence other collections in interesting ways over the next decade.

Early Estimates of Public Elementary and Secondary Education Statistics: School Year 1999–2000

Lena McDowell

This article was originally published as an Early Estimates report. The universe data are from the NCES Common Core of Data (CCD), "Early Estimates of Public Elementary/Secondary Education Survey." Technical notes and definitions from the original report have been omitted.

The Early Estimates System

The early estimates system is designed to allow the National Center for Education Statistics (NCES) to publish selected key statistics during the school year in which they are reported. The source of universe statistical information about public elementary and secondary education is the Common Core of Data (CCD)—data collected annually by NCES from state education agencies. The estimates included in this report were reported in December 1999 for the 1999–2000 school year.*

In early October 1999, survey forms were sent to each state education agency. States were asked to complete the form and return it by mail or facsimile (fax). States that had not responded by mid-November were contacted by telephone. All data were checked for reasonableness against prior years' reports, and follow-up calls were made to resolve any questions. When states did not supply a data item, NCES estimated a value. These values are footnoted in the tables. If one or more states required an estimated number, then the national total for that item is marked as estimated. Any state early estimate that indicated a change of greater than 10 percentage points more or less than the national growth rate was replaced with an adjusted early estimate.

Forty-eight states, the District of Columbia, and two outlying areas participated in the 1999–2000 "Early Estimates of Public Elementary/Secondary Education Survey." The estimates reported here were provided by state education agencies and represent the best information on public elementary and secondary schools available to states at this stage of the school year. They are, however, subject to revision. All estimates for the two nonreporting states and the three outlying areas were calculated by NCES. (California, New Jersey, Guam, and Puerto Rico did not return the completed survey form. American Samoa's survey form was received after the cut-off date.) NCES also estimated missing data items for a number of reporting states.

The tables in this publication include three kinds of data. "Reported" data are previously published figures. "Preliminary" data have not been published previously by NCES; for these, data collection is complete, and processing and data adjustments are through all but the final stage of review. "Estimated" data are those for the current (1999–2000) school year.

Estimated data for the current school year are of three types: estimates derived by the states for NCES (most of the data are of this type); preliminary actual counts reported by individual states; and estimated values developed by NCES using a combination of state-specific and national data.

Highlights

The estimates in this publication are key statistics reported during the 1999–2000 school year. They include the number of students in membership, teachers, and high school graduates for public elementary and secondary schools, and total revenues and expenditures for the operation of public elementary and secondary schools. Highlights of these statistics include the following:

- There were approximately 46.8 million prekindergarten through grade 12 students in the nation's public elementary and secondary schools in fall 1999, compared with 46.5 million in fall 1998. Student membership has increased by 1.9 million since fall 1995 (table 1).
- Public school students were taught by an estimated 2.9 million teachers in school year 1999–2000 (table 2).
- The student membership and teacher count data show a pupil-to-teacher ratio of 16.2 for grades prekindergarten through 12 for public schools in school year 1999–2000 (table 7).
- An estimated 2.5 million public school students graduated from high school in the 1998–99 school year. In the 1999–2000 school year, 2.6 million students are expected to graduate from high school (table 3).

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*For other CCD surveys, in contrast, most nonfiscal data for school year 1999–2000 are reported to NCES from March 2000 through September 2000, after which they undergo NCES and state editing and are adjusted for missing data. High school graduate and fiscal data are reported a year later than student and teacher data.

- Revenues for public elementary and secondary education in fiscal year (FY) 1999 are estimated to be $337.0 billion, and they are expected to rise to approximately $354.4 billion in FY 2000 (table 4).
- Current expenditures for public elementary and secondary education for FY 2000 are estimated to be $308.0 billion, an increase of 3.3 percent over the FY 1999 estimate of $298.2 billion. The per pupil expenditure is anticipated to be $6,585 per student in membership for the 1999–2000 school year (tables 6 and 7).

Data sources: The NCES Common Core of Data (CCD), "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000; "Public Elementary/Secondary School Universe Survey," 1995–96 through 1997–98; "Local Education Agency Universe Survey," 1995–96 through 1997–98; and "National Public Education Financial Survey," 1995–96 through 1997–98.

For technical information, see the complete report:

McDowell, L. (2000). *Early Estimates of Public Elementary and Secondary Education Statistics: School Year 1999–2000* (NCES 2000–364).

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To obtain the complete report (NCES 2000–364), visit the NCES Web Site (*http://nces.ed.gov*) or contact Lena McDowell (*lena_mcdowell@ed.gov*).

Table 1.—Student membership in public elementary and secondary schools, by state, for grades prekindergarten through 12: Fall 1995 to Fall 1999

State	Reported fall 1995	Reported fall 1996	Reported fall 1997	Preliminary fall 1998	Estimated fall 1999
United States	44,840,481	45,611,046	46,126,897	46,534,687	[1]46,772,445
Alabama	746,149	747,932	749,207	747,970	[3]730,342
Alaska	127,618	129,919	132,123	135,373	136,658
Arizona	743,566	799,250	814,113	848,262	872,428
Arkansas	453,257	457,349	456,497	452,256	426,984
California	5,536,406	5,686,198	5,803,887	5,925,964	[1]6,050,609
Colorado	656,279	673,438	687,167	699,135	[3]708,109
Connecticut	517,935	527,129	535,164	544,698	554,087
Delaware	108,461	110,549	111,960	113,262	113,622
District of Columbia	79,802	78,648	77,111	71,889	[3]70,762
Florida	2,176,222	2,242,212	2,294,077	2,337,633	[3]2,380,232
Georgia	1,311,126	1,346,761	1,375,980	1,401,291	1,422,762
Hawaii	187,180	187,653	189,887	188,069	[3]185,036
Idaho	243,097	245,252	244,403	244,722	245,100
Illinois	1,943,623	1,973,040	1,998,289	2,011,530	2,035,450
Indiana	977,263	982,876	986,836	988,094	993,985
Iowa	502,343	502,941	501,054	498,214	498,836
Kansas	463,008	466,293	468,687	472,353	469,376
Kentucky	659,821	656,089	669,322	655,687	637,007
Louisiana	797,366	793,296	776,813	768,734	710,159
Maine	213,569	213,593	212,579	210,503	[3]219,000
Maryland	805,544	818,583	830,744	841,671	846,709
Massachusetts	915,007	933,898	949,006	962,317	[2]975,815
Michigan	1,641,456	1,685,714	1,702,717	1,720,266	1,712,300
Minnesota	835,166	847,204	853,621	855,119	857,023
Mississippi	506,272	503,967	504,792	502,379	499,359
Missouri	889,881	900,517	910,613	912,445	893,052
Montana	165,547	164,627	162,335	159,988	157,236
Nebraska	289,744	291,967	292,681	291,140	287,752
Nevada	265,041	282,131	296,621	311,061	326,616
New Hampshire	194,171	198,308	201,629	204,713	208,812
New Jersey	1,197,381	1,227,832	1,250,276	1,268,996	[1]1,287,996
New Mexico	329,640	332,632	331,673	328,753	324,222
New York	2,813,230	2,843,131	2,861,823	2,877,143	2,884,000
North Carolina	1,183,090	1,210,108	1,236,083	1,254,821	[3]1,256,063
North Dakota	119,100	120,123	118,572	114,597	[3]111,705

See footnotes on second page of this table.

Table 1.—Student membership in public elementary and secondary schools, by state, for grades prekindergarten through 12: Fall 1995 to Fall 1999—Continued

State	Reported fall 1995	Reported fall 1996	Reported fall 1997	Preliminary fall 1998	Estimated fall 1999
Ohio	1,836,015	1,844,698	1,847,114	1,842,559	1,837,000
Oklahoma	616,393	620,695	623,681	628,492	633,361
Oregon	527,914	537,854	541,346	542,809	[1]545,059
Pennsylvania	1,787,533	1,804,256	1,815,151	1,816,414	1,817,530
Rhode Island	149,799	151,324	153,321	154,785	156,458
South Carolina	645,586	652,816	659,273	664,592	646,850
South Dakota	144,685	143,331	142,443	132,495	130,863
Tennessee	893,770	904,818	893,044	905,442	908,722
Texas	3,748,167	3,828,975	3,891,877	3,945,367	4,025,923
Utah	477,121	481,812	482,957	481,176	[3]477,775
Vermont	105,565	106,341	105,984	105,120	106,069
Virginia	1,079,854	1,096,093	1,110,815	1,124,022	[1]1,133,994
Washington	956,572	974,504	991,235	998,053	1,002,044
West Virginia	307,112	304,052	301,419	297,530	[1]290,936
Wisconsin	870,175	879,259	881,780	879,542	878,900
Wyoming	99,859	99,058	97,115	95,241	[3]91,757
Outlying areas					
American Samoa	14,576	14,766	15,214	[1]15,372	[1]15,532
Guam	32,960	33,393	32,444	[1]32,222	[1]32,002
Northern Marianas	8,809	9,041	9,246	[3]9,498	[3]9,692
Puerto Rico	627,620	618,861	617,322	[1]613,862	[1]610,421
Virgin Islands	22,737	22,385	22,136	20,976	19,902

[1] Data imputed by NCES based on previous year's data.

[2] Early estimate number reported by state, adjusted by NCES.

[3] Actual count reported by state.

NOTE: All fall 1999 data are state estimates, except where noted. Estimates are as of December 1999. Fall 1996 and fall 1997 data are revised from earlier publications.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000, and "Public Elementary/Secondary School Universe Survey," 1995–96 through 1997–98.

Table 2.—Number of teachers in public elementary and secondary schools, by state, for grades prekindergarten through 12: School years 1995–96 to 1999–2000

State	Reported 1995–96	Reported 1996–97	Reported 1997–98	Preliminary 1998–99	Estimated 1999–2000
United States	2,598,220	2,667,419	2,746,157	[1]2,826,146	[1]2,887,233
Alabama	44,056	45,035	45,967	47,753	[3]48,269
Alaska	7,379	7,418	7,625	8,118	7,992
Arizona	38,017	40,521	41,129	42,352	45,540
Arkansas	26,449	26,681	26,931	27,953	[2]26,836
California	230,849	248,818	268,535	[1]281,686	[1]292,455
Colorado	35,388	36,398	37,840	39,434	41,104
Connecticut	36,070	36,551	37,658	38,772	39,918
Delaware	6,463	6,642	6,850	7,074	[3]7,311
District of Columbia	5,305	5,288	4,388	5,187	[1]5,192
Florida	114,938	120,471	124,473	126,796	131,249
Georgia	79,480	81,795	86,244	88,658	90,286
Hawaii	10,500	10,576	10,653	10,639	10,510
Idaho	12,784	13,078	13,207	13,426	14,600
Illinois	113,538	116,274	118,734	121,758	127,216
Indiana	55,821	56,708	57,371	58,084	58,843

See footnotes on second page of this table.

Table 2.—Number of teachers in public elementary and secondary schools, by state, for grades prekindergarten through 12: School years 1995–96 to 1999–2000—Continued

State	Reported 1995–96	Reported 1996–97	Reported 1997–98	Preliminary 1998–99	Estimated 1999–2000
Iowa	32,318	32,593	32,700	32,822	33,744
Kansas	30,729	30,875	31,527	32,003	32,240
Kentucky	39,120	39,331	40,488	40,803	39,813
Louisiana	46,980	47,334	48,599	49,124	47,363
Maine	15,392	15,551	15,700	15,890	17,170
Maryland	47,819	47,943	48,318	49,840	50,801
Massachusetts	62,710	64,574	67,170	69,752	[2]71,922
Michigan	83,179	88,051	90,529	93,220	93,100
Minnesota	46,971	48,245	51,998	50,565	53,747
Mississippi	28,997	29,293	29,441	31,140	30,736
Missouri	57,951	59,428	60,889	62,222	63,500
Montana	10,076	10,268	10,228	10,221	10,200
Nebraska	20,028	20,174	20,065	20,310	[3]20,609
Nevada	13,878	14,805	16,053	16,415	17,486
New Hampshire	12,346	12,692	12,931	13,290	13,559
New Jersey	86,706	87,642	89,671	[1]92,264	[1]95,223
New Mexico	19,398	19,971	19,647	19,981	19,802
New York	181,559	185,104	190,874	197,253	206,000
North Carolina	73,201	75,239	77,785	79,531	79,498
North Dakota	7,501	7,892	8,070	7,974	[2]7,904
Ohio	107,347	108,515	110,761	113,986	114,600
Oklahoma	39,364	39,568	40,215	40,886	41,557
Oregon	26,680	26,757	26,935	27,152	[3]30,086
Pennsylvania	104,921	106,432	108,014	111,065	111,250
Rhode Island	10,482	10,656	10,598	11,124	11,235
South Carolina	39,922	41,463	42,336	43,689	43,870
South Dakota	9,641	9,625	9,282	9,273	9,250
Tennessee	53,403	54,790	54,142	59,258	[2]60,474
Texas	240,371	247,650	254,557	259,739	266,878
Utah	20,039	19,734	21,115	21,501	21,400
Vermont	7,676	7,751	7,909	8,221	8,549
Virginia	74,731	74,526	77,575	79,393	81,751
Washington	46,907	48,307	49,074	49,671	50,009
West Virginia	21,073	20,888	20,947	20,989	20,316
Wisconsin	55,033	54,769	55,732	61,176	57,670
Wyoming	6,734	6,729	6,677	6,713	6,600
Outlying areas					
American Samoa	728	734	762	[1]764	[1]785
Guam	1,802	1,552	1,363	[1]1,052	[1]1,062
Northern Marianas	422	441	483	[3]496	[3]469
Puerto Rico	39,328	39,743	38,953	[1]39,849	[1]40,293
Virgin Islands	1,622	1,580	1,559	1,567	1,485

[1] Data imputed by NCES based on previous year's data.

[2] Early estimate number reported by state, adjusted by NCES.

[3] Actual count reported by state.

NOTE: All school year 1999–2000 data are state estimates, except where noted. Estimates are as of December 1999. Fall 1996 and fall 1997 data are revised from earlier publications.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000, and "Public Elementary/Secondary School Universe Survey," 1995–96 through 1997–98.

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Table 3.—Number of public high school graduates, by state: School years 1995–96 to 1999–2000

State	Reported 1995–96	Reported 1996–97	Preliminary 1997–98	Estimated 1998–99	Estimated 1999–2000
United States	2,273,109	2,401,791	2,457,658	[1]2,502,320	[1]2,556,184
Alabama	35,043	35,611	38,089	39,133	37,893
Alaska	5,945	6,133	6,462	6,450	6,975
Arizona	30,008	34,082	36,361	[2]38,249	40,017
Arkansas	25,094	25,146	26,855	27,719	[2]26,622
California	259,071	311,818	282,897	[1]291,612	[1]302,882
Colorado	32,608	34,231	35,794	36,958	[2]38,078
Connecticut	26,319	27,009	27,885	28,587	29,858
Delaware	5,609	5,953	6,439	6,322	6,356
District of Columbia	2,696	2,853	2,777	2,675	2,530
Florida	89,242	95,082	98,498	98,933	99,930
Georgia	56,271	58,996	58,525	[2]60,172	62,148
Hawaii	9,387	8,929	9,670	10,418	10,152
Idaho	14,667	15,407	15,523	15,704	15,700
Illinois	104,626	110,170	114,611	112,557	111,230
Indiana	56,330	57,463	58,899	58,341	58,364
Iowa	31,689	32,986	36,008	34,447	34,149
Kansas	25,786	26,648	27,856	28,621	28,964
Kentucky	36,641	36,941	37,270	36,956	36,956
Louisiana	36,467	36,495	38,030	37,440	[2]35,184
Maine	11,795	12,019	12,171	12,671	12,871
Maryland	41,785	42,856	44,555	46,821	48,106
Massachusetts	47,993	49,008	50,452	[3]50,452	50,537
Michigan	85,530	89,695	92,732	94,200	100,600
Minnesota	50,481	48,193	54,494	[3]57,048	57,603
Mississippi	23,032	23,388	24,502	24,022	26,375
Missouri	49,011	50,543	52,031	51,796	53,500
Montana	10,139	10,322	10,656	10,877	10,893
Nebraska	18,014	18,636	19,719	20,173	22,093
Nevada	10,374	12,425	13,052	[3]13,259	13,922
New Hampshire	10,094	10,487	10,843	10,211	10,383
New Jersey	67,704	70,028	65,106	[1]66,713	[1]68,880
New Mexico	15,402	15,700	16,529	[3]17,317	17,254
New York	134,401	140,861	138,531	140,200	141,800
North Carolina	57,014	57,886	59,292	[3]59,776	61,463
North Dakota	8,027	8,025	8,170	[3]8,422	8,635
Ohio	102,098	107,422	111,211	115,000	115,000
Oklahoma	33,060	35,948	35,213	[2]35,824	[2]36,725
Oregon	26,570	27,720	27,754	[3]28,678	28,700
Pennsylvania	105,981	108,817	110,919	112,310	114,160
Rhode Island	7,689	7,850	8,074	8,088	7,498
South Carolina	30,182	30,829	31,951	34,000	34,500
South Dakota	8,532	9,247	9,140	8,991	9,420
Tennessee	43,792	39,866	57,236	[2]58,586	[2]59,812
Texas	171,844	181,794	197,186	203,541	212,966
Utah	26,293	30,753	31,567	[3]31,574	32,303
Vermont	5,867	6,181	6,469	[3]6,482	6,763
Virginia	58,166	60,587	61,777	[3]65,345	66,868
Washington	49,862	51,609	53,679	54,473	57,246
West Virginia	20,335	19,573	20,164	[3]19,498	19,582
Wisconsin	52,651	55,189	57,607	58,330	59,438
Wyoming	5,892	6,381	6,427	[3]6,348	6,300

See footnotes on second page of this table.

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Table 3.—Number of public high school graduates, by state: School years 1995–96 to 1999–2000—Continued

State	Reported 1995–96	Reported 1996–97	Preliminary 1997–98	Estimated 1998–99	Estimated 1999–2000
Outlying areas					
American Samoa	719	710	665	[1]679	[1]698
Guam	987	1,103	923	[1]926	[1]936
Northern Marianas	325	309	374	[2]388	[2]403
Puerto Rico	29,499	29,692	29,881	[1]30,026	[1]30,373
Virgin Islands	937	937	1,069	[2]1,024	[2]988

[1] Data imputed by NCES based on previous year's data.

[2] Early estimate number reported by state, adjusted by NCES.

[3] Actual count reported by state.

NOTE: All school year 1998–99 and 1999–2000 data are state estimates, except where noted. Estimates are as of December 1999. Data for school years 1995–96 and 1996–97 are revised from earlier publications.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000, and "Local Education Agency Universe Survey," 1995–96 through 1997–98.

Table 4.—Revenues for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1996 to 2000 (School years 1995–96 to 1999–2000)

(In thousands of dollars)

State	Reported FY 1996	Reported FY 1997	Preliminary FY 1998	Estimated FY 1999	Estimated FY 2000
United States	$287,702,846	$305,065,192	$325,976,011	[1]$336,971,907	[1]$354,398,647
Alabama	3,771,940	3,955,039	4,146,629	[1]4,242,621	[1]4,335,526
Alaska	1,183,127	1,219,017	1,218,425	1,293,255	1,332,053
Arizona	4,151,421	4,400,591	4,731,675	4,982,454	5,246,524
Arkansas	2,204,845	2,371,834	2,600,655	[3]2,411,108	2,476,620
California	30,858,564	34,477,895	38,142,613	[1]39,912,340	[1]42,649,382
Colorado	3,804,992	4,045,015	4,327,326	4,474,455	4,590,791
Connecticut	4,786,247	4,899,852	5,160,728	5,504,000	5,930,000
Delaware	822,226	878,326	913,616	1,010,531	1,102,422
District of Columbia	675,409	711,504	706,935	[1]675,433	[1]695,802
Florida	13,214,948	13,861,434	14,988,118	[1]15,652,083	[1]16,679,406
Georgia	7,627,823	8,129,250	9,041,434	[2]9,436,484	[2]10,027,199
Hawaii	1,201,888	1,215,924	1,282,702	1,301,942	1,321,471
Idaho	1,179,927	1,251,263	1,320,647	1,463,800	1,574,700
Illinois	12,290,140	13,161,954	14,194,654	14,497,766	14,932,699
Indiana	6,191,534	7,638,406	7,513,407	7,801,000	7,938,000
Iowa	3,033,687	3,167,763	3,346,481	3,487,033	3,602,105
Kansas	2,948,036	3,040,600	3,122,238	3,215,905	3,312,382
Kentucky	3,492,890	3,794,129	3,932,068	[3]4,285,357	4,492,135
Louisiana	3,934,998	4,154,495	4,494,429	4,640,400	4,826,016
Maine	1,451,987	1,510,999	1,600,635	1,678,746	1,760,669
Maryland	5,695,850	6,042,059	6,454,696	6,600,598	6,923,995
Massachusetts	6,772,855	7,229,486	7,893,657	7,898,078	8,380,444
Michigan	12,698,697	13,437,615	14,329,715	14,591,949	14,858,981
Minnesota	5,939,765	6,109,916	6,529,420	6,465,603	6,835,139
Mississippi	2,225,798	2,259,053	2,407,954	2,469,737	2,593,223
Missouri	5,263,003	5,571,655	6,005,256	6,113,421	6,304,361
Montana	941,538	991,653	1,029,939	995,600	1,000,500
Nebraska	1,876,494	1,954,789	1,964,205	1,817,919	1,908,815
Nevada	1,554,888	1,705,232	1,910,794	2,017,118	2,168,402
New Hampshire	1,217,104	1,282,509	1,364,943	1,504,968	1,584,223
New Jersey	11,882,657	12,376,750	13,189,983	[1]13,720,037	[1]14,573,879
New Mexico	1,783,804	1,829,725	1,952,452	2,057,985	2,095,861
New York	25,849,431	26,564,743	27,782,468	[3]29,171,591	30,630,171
North Carolina	6,154,971	6,515,608	7,188,615	7,904,648	8,260,357
North Dakota	618,322	642,984	682,419	647,150	675,198

See footnotes on second page of this table.

Table 4.—Revenues for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1996 to 2000 (School years 1995–96 to 1999–2000)—Continued

(In thousands of dollars)

State	Reported FY 1996	Reported FY 1997	Preliminary FY 1998	Estimated FY 1999	Estimated FY 2000
Ohio	11,794,089	12,587,117	13,458,095	13,732,000	14,508,000
Oklahoma	2,856,688	3,251,302	3,416,296	3,723,762	4,058,901
Oregon	3,366,831	3,472,609	3,883,939	3,602,000	4,071,000
Pennsylvania	14,047,905	14,441,126	14,837,945	15,706,000	16,590,000
Rhode Island	1,138,171	1,193,754	1,264,156	1,237,702	1,311,964
South Carolina	3,697,232	3,889,383	4,055,072	4,375,719	4,638,262
South Dakota	717,005	749,052	794,256	826,366	859,421
Tennessee	4,142,148	4,411,971	4,815,833	4,897,700	5,123,000
Texas	21,689,792	22,372,808	24,179,060	[2]25,120,276	[2]26,826,743
Utah	2,066,218	2,198,285	2,305,397	[2]2,353,953	[2]2,446,148
Vermont	773,448	812,166	861,643	[1]875,848	[1]924,906
Virginia	6,826,448	7,204,512	7,757,954	7,130,655	7,158,230
Washington	6,327,993	6,642,158	6,895,693	[2]7,115,601	[2]7,476,706
West Virginia	1,990,094	2,082,049	2,216,984	2,303,212	2,376,914
Wisconsin	6,304,318	6,701,115	7,059,759	7,270,000	7,659,000
Wyoming	662,660	656,713	702,001	[3]757,998	750,000
Outlying areas					
American Samoa	45,087	47,430	49,677	[1]51,439	[1]54,394
Guam	171,464	168,835	173,339	[1]176,430	[1]183,381
Northern Marianas	44,418	56,010	58,239	53,548	[2]57,186
Puerto Rico	1,821,858	1,832,790	2,094,025	[1]2,134,015	[1]2,220,864
Virgin Islands	142,016	141,786	152,499	[1]148,097	[1]147,057

[1] Data imputed by NCES based on previous year's data.

[2] Data include adjusted estimates by NCES for a few specific local revenues, based on current-year data.

[3] Actual amount reported by state.

NOTE: All FY 1999 and FY 2000 data are state estimates, except where noted. Estimates are as of December 1999. Detail may not add to totals due to rounding. FY 1997 and FY 1998 data are revised from earlier publications.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000, and "National Public Education Financial Survey," 1995–96 through 1997–98.

Table 5.—Current expenditures for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1996 to 2000 (School years 1995–96 to 1999–2000)

(In thousands of dollars)

State	Reported FY 1996	Reported FY 1997	Preliminary FY 1998	Estimated FY 1999	Estimated FY 2000
United States	$255,106,683	$270,174,298	$285,489,511	[1]$298,212,031	[1]$307,980,824
Alabama	3,240,364	3,436,406	3,633,159	[1]3,756,187	[1]3,659,251
Alaska	1,045,022	1,069,379	1,092,750	1,156,534	1,191,230
Arizona	3,327,969	3,527,473	3,740,639	3,938,892	4,147,653
Arkansas	1,994,748	2,074,113	2,149,237	[2]2,205,013	[2]2,077,024
California	27,334,639	29,909,168	32,759,492	[1]34,658,389	[1]35,285,858
Colorado	3,360,529	3,577,211	3,886,872	4,019,026	4,123,521
Connecticut	4,366,123	4,522,718	4,765,077	5,077,000	5,470,000
Delaware	726,241	788,715	830,731	[2]870,287	[2]871,051
District of Columbia	679,106	632,951	647,202	[1]624,836	[1]613,630
Florida	11,480,359	12,018,676	12,737,325	[1]13,440,859	[1]13,654,410
Georgia	6,629,646	7,230,405	7,770,241	[2]8,194,665	[2]8,301,146
Hawaii	1,040,682	1,057,069	1,112,351	1,129,036	1,145,972
Idaho	1,019,594	1,090,597	1,153,778	[2]1,196,380	[2]1,195,480
Illinois	10,727,091	11,720,249	12,473,064	12,005,570	[1]12,365,737
Indiana	5,493,653	6,055,055	6,234,563	6,609,000	7,006,000

See footnotes on second page of this table.

Table 5.—Current expenditures for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1996 to 2000 (School years 1995–96 to 1999–2000)—Continued

(In thousands of dollars)

State	Reported FY 1996	Reported FY 1997	Preliminary FY 1998	Estimated FY 1999	Estimated FY 2000
Iowa	2,753,425	2,885,943	3,005,421	3,131,649	3,234,993
Kansas	2,488,077	2,568,525	2,684,244	2,805,035	2,903,211
Kentucky	3,171,495	3,382,062	3,489,205	[3]3,914,323	4,165,306
Louisiana	3,545,832	3,747,508	4,030,379	4,156,982	4,323,261
Maine	1,313,759	1,372,571	1,433,175	1,448,539	1,519,228
Maryland	5,311,207	5,529,309	5,843,685	5,837,401	[1]6,178,289
Massachusetts	6,435,458	6,846,610	7,381,784	7,611,581	8,084,078
Michigan	11,137,877	11,686,124	12,003,818	12,223,488	12,447,178
Minnesota	4,844,879	5,087,353	5,452,571	[3]6,191,284	[1]6,500,848
Mississippi	2,000,321	2,035,675	2,164,592	[3]2,295,662	2,410,445
Missouri	4,531,192	4,775,931	5,067,720	4,915,533	5,049,807
Montana	868,892	902,252	929,197	952,400	976,210
Nebraska	1,648,104	1,707,455	1,743,775	[2]1,796,297	1,771,323
Nevada	1,296,629	1,434,395	1,570,576	1,694,275	1,828,123
New Hampshire	1,114,540	1,173,958	1,241,255	1,380,937	1,447,504
New Jersey	11,208,558	11,771,941	12,056,560	[1]12,672,381	[1]12,832,626
New Mexico	1,517,517	1,557,376	1,659,891	1,791,728	1,911,446
New York	23,522,461	24,237,291	25,332,735	[2]26,374,317	[2]26,376,550
North Carolina	5,582,994	5,964,939	6,497,648	[2]6,830,788	[2]6,821,869
North Dakota	557,043	577,498	599,443	633,810	664,503
Ohio	10,408,022	10,948,074	11,448,722	11,463,000	12,040,000
Oklahoma	2,804,088	2,990,044	3,138,690	3,468,253	3,504,670
Oregon	3,056,801	3,184,100	3,474,714	3,453,000	3,853,000
Pennsylvania	12,374,073	12,820,704	13,084,859	13,803,000	14,622,000
Rhode Island	1,094,185	1,151,888	1,215,595	1,227,301	1,300,939
South Carolina	3,085,495	3,296,661	3,507,017	3,717,438	3,940,484
South Dakota	610,640	628,753	665,082	698,366	708,842
Tennessee	3,728,486	4,145,380	4,409,338	4,550,641	4,800,000
Texas	18,801,462	20,167,238	21,188,676	22,439,673	23,633,280
Utah	1,719,782	1,822,725	1,916,688	1,860,000	1,907,000
Vermont	684,864	718,092	749,786	[1]770,128	[1]775,298
Virginia	5,969,608	6,343,768	6,739,003	7,699,176	7,839,713
Washington	5,394,507	5,587,808	5,986,649	6,037,573	[1]6,527,044
West Virginia	1,806,004	1,847,560	1,905,940	2,218,396	2,360,792
Wisconsin	5,670,826	5,975,122	6,280,696	6,601,000	6,938,000
Wyoming	581,817	591,488	603,901	[3]685,000	675,000
Outlying areas					
American Samoa	30,382	33,780	33,088	[1]34,620	[1]34,900
Guam	158,303	156,561	168,716	[1]173,522	[1]171,940
Northern Marianas	44,037	53,140	56,514	[2]60,119	[2]61,206
Puerto Rico	1,667,640	1,740,074	1,981,603	[1]2,040,592	[1]2,024,501
Virgin Islands	122,286	122,188	131,377	[1]128,921	[1]122,040

[1] Data imputed by NCES based on previous year's data.

[2] Data include imputations by NCES for food services and/or enterprise operations.

[3] Actual amount reported by state.

NOTE: All FY 1999 and FY 2000 data are state estimates, except where noted. Estimates are as of December 1999. Detail may not add to totals due to rounding. FY 1996 through FY 1998 data are revised from earlier publications.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000, and "National Public Education Financial Survey," 1995–96 through 1997–98.

Table 6.—Preliminary student membership and number of teachers, and estimates of revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1998–99/Fiscal year 1999

	Preliminary		Estimated				
State	Student membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/teacher ratio	Per pupil revenue	Per pupil expenditure
United States	46,534,687	[1]2,826,146	[1]$336,971,906	[1]$298,212,031	16.5	$7,241	$6,408
Alabama	747,970	47,753	[1]4,242,621	[1]3,756,187	15.7	5,672	5,022
Alaska	135,373	8,118	1,293,255	1,156,534	16.7	9,553	8,543
Arizona	848,262	42,352	4,982,454	3,938,892	20.0	5,874	4,643
Arkansas	452,256	27,953	[3]2,411,108	[2]2,205,013	16.2	5,331	4,876
California	5,925,964	[1]281,686	[1]39,912,340	[1]34,638,389	21.0	6,735	5,845
Colorado	699,135	39,434	4,474,455	4,019,026	17.7	6,400	5,749
Connecticut	544,698	38,772	5,504,000	5,077,000	14.0	10,105	9,321
Delaware	113,262	7,074	1,010,531	[2]870,287	16.0	8,922	7,684
District of Columbia	71,889	5,187	[1]675,433	[1]624,836	13.9	9,395	8,692
Florida	2,337,633	126,796	[1]15,652,083	[1]13,440,859	18.4	6,696	5,750
Georgia	1,401,291	88,658	[2]9,436,484	[2]8,194,665	15.8	6,734	5,848
Hawaii	188,069	10,639	1,301,942	1,129,036	17.7	6,923	6,003
Idaho	244,722	13,426	1,463,800	[2]1,196,380	18.2	5,981	4,889
Illinois	2,011,530	121,758	14,497,766	12,005,570	16.5	7,207	5,968
Indiana	988,094	58,084	7,801,000	6,609,000	17.0	7,895	6,689
Iowa	498,214	32,822	3,487,033	3,131,649	15.2	6,999	6,286
Kansas	472,353	32,003	3,215,905	2,805,035	14.8	6,808	5,938
Kentucky	655,687	40,803	[3]4,285,357	[3]3,914,323	16.1	6,536	5,970
Louisiana	768,734	49,124	4,640,400	4,156,982	15.6	6,036	5,408
Maine	210,503	15,890	1,678,746	1,448,539	13.2	7,975	6,881
Maryland	841,671	49,840	6,600,598	5,837,401	16.9	7,842	6,935
Massachusetts	962,317	69,752	7,898,078	7,611,581	13.8	8,207	7,910
Michigan	1,720,266	93,220	14,591,949	12,223,488	18.5	8,482	7,106
Minnesota	855,119	50,565	6,465,603	[3]6,191,284	16.9	7,561	7,240
Mississippi	502,379	31,140	2,469,737	[3]2,295,662	16.1	4,916	4,570
Missouri	912,445	62,222	6,113,421	4,915,533	14.7	6,700	5,387
Montana	159,988	10,221	995,600	952,400	15.7	6,223	5,953
Nebraska	291,140	20,310	1,817,919	[2]1,796,297	14.3	6,244	6,170
Nevada	311,061	16,415	2,017,118	1,694,275	18.9	6,485	5,447
New Hampshire	204,713	13,290	1,504,968	1,380,937	15.4	7,352	6,746
New Jersey	1,268,996	[1]92,264	[1]13,720,037	[1]12,672,381	13.8	10,812	9,986
New Mexico	328,753	19,981	2,057,985	1,791,728	16.5	6,260	5,450
New York	2,877,143	197,253	[3]29,171,591	[2]26,374,317	14.6	10,139	9,167
North Carolina	1,254,821	79,531	7,904,648	[2]6,830,788	15.8	6,299	5,444
North Dakota	114,597	7,974	647,150	633,810	14.4	5,647	5,531
Ohio	1,842,559	113,986	13,732,000	11,463,000	16.2	7,453	6,221
Oklahoma	628,492	40,886	3,723,762	3,468,253	15.4	5,925	5,518
Oregon	542,809	27,152	3,602,000	3,453,000	20.0	6,636	6,361
Pennsylvania	1,816,414	111,065	15,706,000	13,803,000	16.4	8,647	7,599
Rhode Island	154,785	11,124	1,237,702	1,227,301	13.9	7,996	7,929
South Carolina	664,592	43,689	4,375,719	3,717,438	15.2	6,584	5,594
South Dakota	132,495	9,273	826,366	698,366	14.3	6,237	5,271
Tennessee	905,442	59,258	4,897,700	4,550,641	15.3	5,409	5,026
Texas	3,945,367	259,739	[2]25,120,276	22,439,673	15.2	6,367	5,688
Utah	481,176	21,501	[2]2,353,953	1,860,000	22.4	4,892	3,866
Vermont	105,120	8,221	[1]875,848	[1]770,128	12.8	8,332	7,326
Virginia	1,124,022	79,393	7,130,655	7,699,176	14.2	6,344	6,850
Washington	998,053	49,671	[2]7,115,601	6,037,573	20.1	7,129	6,049
West Virginia	297,530	20,989	2,303,212	2,218,396	14.2	7,741	7,456
Wisconsin	879,542	61,176	7,270,000	6,601,000	14.4	8,266	7,505
Wyoming	95,241	6,713	[3]757,998	[3]685,000	14.2	7,959	7,192

See footnotes on second page of this table.

Table 6.—Preliminary student membership and number of teachers, and estimates of revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1998–99/Fiscal year 1999—Continued

	Preliminary		Estimated				
State	Student membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/ teacher ratio	Per pupil revenue	Per pupil expenditure
Outlying areas							
American Samoa	[1]15,372	[1]764	[1]51,439	[1]34,620	20.1	3,346	2,252
Guam	[1]32,222	[1]1,052	[1]176,430	[1]173,522	30.6	5,475	5,385
Northern Marianas	[3]9,498	[3]496	53,548	[2]60,119	19.1	5,638	6,330
Puerto Rico	[1]613,862	[1]39,849	[1]2,134,015	[1]2,040,592	15.4	3,476	3,324
Virgin Islands	20,976	1,567	[1]148,097	[1]128,921	13.4	7,060	6,146

[1] Data imputed by NCES based on previous year's data.

[2] Early estimate number reported by state, adjusted by NCES.

[3] Actual count/amount reported by state.

NOTE: All estimated data are state estimates, except where noted. Estimates are as of December 1999. Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1998–99.

Table 7.—Estimated student membership, number of teachers, revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1999–2000/Fiscal year 2000

State	Student membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/ teacher ratio	Per pupil revenue	Per pupil expenditure
United States	[1]46,772,445	[1]2,887,233	[1]$354,398,647	[1]$307,980,824	16.2	$7,577	$6,585
Alabama	[3]730,342	[3]48,269	[1]4,335,526	[1]3,659,251	15.1	5,936	5,010
Alaska	136,658	7,992	1,332,053	1,191,230	17.1	9,747	8,717
Arizona	872,428	45,540	5,246,524	4,147,653	19.2	6,014	4,754
Arkansas	426,984	[2]26,836	2,476,620	[2]2,077,024	15.9	5,800	4,864
California	[1]6,050,609	[1]292,455	[1]42,649,382	[1]35,285,858	20.7	7,049	5,832
Colorado	[3]708,109	41,104	4,590,791	4,123,521	17.2	6,483	5,823
Connecticut	554,087	39,918	5,930,000	5,470,000	13.9	10,702	9,872
Delaware	113,622	[3]7,311	1,102,422	[2]871,051	15.5	9,703	7,666
District of Columbia	[3]70,762	[2]5,192	[1]695,802	[1]613,630	13.6	9,833	8,672
Florida	[3]2,380,232	131,249	[1]16,679,406	[1]13,654,410	18.1	7,007	5,737
Georgia	1,422,762	90,286	[2]10,027,199	[1]8,301,146	15.8	7,048	5,835
Hawaii	185,036	10,510	1,321,471	1,145,972	17.6	7,142	6,193
Idaho	245,100	14,600	1,574,700	[2]1,195,480	16.8	6,425	4,878
Illinois	2,035,450	127,216	14,932,699	[1]12,365,737	16.0	7,336	6,075
Indiana	993,985	58,843	7,938,000	7,006,000	16.9	7,986	7,048
Iowa	498,836	33,744	3,602,105	3,234,993	14.8	7,221	6,485
Kansas	469,376	32,240	3,312,382	2,903,211	14.6	7,057	6,185
Kentucky	637,007	39,813	4,492,135	4,165,306	16.0	7,052	6,539
Louisiana	710,159	47,363	4,826,016	4,323,261	15.0	6,796	6,088
Maine	[3]219,000	17,170	1,760,669	1,519,228	12.8	8,040	6,937
Maryland	846,709	50,801	6,923,995	[1]6,178,289	16.7	8,178	7,297
Massachusetts	[4]975,815	[2]71,922	8,380,444	8,084,078	13.6	8,588	8,284
Michigan	1,712,300	93,100	14,858,981	12,447,178	18.4	8,678	7,269
Minnesota	857,023	53,747	6,835,139	[1]6,500,848	15.9	7,975	7,585
Mississippi	499,359	30,736	2,593,223	2,410,445	16.2	5,193	4,827
Missouri	893,052	63,500	6,304,361	5,049,807	14.1	7,059	5,655
Montana	157,236	10,200	1,000,500	976,210	15.4	6,363	6,209
Nebraska	287,752	[1]20,609	1,908,815	[2]1,771,323	14.0	6,634	6,156
Nevada	326,616	17,486	2,168,402	1,828,123	18.7	6,639	5,597
New Hampshire	208,812	13,559	1,584,223	1,447,504	15.4	7,587	6,932

See footnotes on second page of this table.

Table 7.—Estimated student membership, number of teachers, revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1999–2000/Fiscal year 2000

State	Student membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/ teacher ratio	Per pupil revenue	Per pupil expenditure
New Jersey	[1]1,287,996	[1]95,223	[1]14,573,879	[1]12,832,626	13.5	11,315	9,963
New Mexico	324,222	19,802	2,095,861	1,911,446	16.4	6,464	5,895
New York	2,884,000	206,000	30,630,171	[1]26,376,550	14.0	10,621	9,146
North Carolina	[3]1,256,063	79,498	8,260,357	[2]6,821,869	15.8	6,576	5,431
North Dakota	[3]111,705	[2]7,904	675,198	664,503	14.1	6,044	5,949
Ohio	1,837,000	114,600	14,508,000	12,040,000	16.0	7,898	6,554
Oklahoma	633,361	41,557	4,058,901	3,504,670	15.2	6,409	5,533
Oregon	[3]545,059	[3]30,086	4,071,000	3,853,000	18.1	7,469	7,069
Pennsylvania	1,817,530	111,250	16,590,000	14,622,000	16.3	9,128	8,045
Rhode Island	156,458	11,235	1,311,964	1,300,939	13.9	8,385	8,315
South Carolina	646,850	43,870	4,638,262	3,940,484	14.7	7,171	6,092
South Dakota	130,863	9,250	859,421	708,842	14.1	6,567	5,417
Tennessee	908,722	[2]60,474	5,123,000	4,800,000	15.0	5,638	5,282
Texas	4,025,923	266,878	[3]26,826,743	23,633,280	15.1	6,664	5,870
Utah	[3]477,775	21,400	[2]2,446,148	1,907,000	22.3	5,120	3,991
Vermont	106,069	8,549	[1]924,906	[1]775,298	12.4	8,720	7,309
Virginia	[3]1,133,994	81,751	7,158,230	7,839,713	13.9	6,312	6,913
Washington	1,002,044	50,009	[2]7,476,706	[1]6,527,044	20.0	7,461	6,514
West Virginia	[3]290,936	20,316	2,376,914	2,360,792	14.3	8,170	8,114
Wisconsin	878,900	57,670	7,659,000	6,938,000	15.2	8,714	7,894
Wyoming	[3]91,757	6,600	750,000	675,000	13.9	8,174	7,356
Outlying areas							
American Samoa	[1]15,532	[1]785	[1]54,394	[1]34,900	19.8	3,502	2,247
Guam	[1]32,002	[1]1,062	[1]183,381	[1]171,940	30.1	5,730	5,373
Northern Marianas	9,692	469	[2]57,186	61,206	20.7	5,900	6,315
Puerto Rico	[1]610,421	[1]40,293	[1]2,220,864	[1]2,024,501	15.1	3,638	3,317
Virgin Islands	19,902	1,485	[1]147,057	122,040	13.4	7,389	6,132

[1] Data imputed by NCES based on previous year's data.

[2] Early estimate number reported by state, adjusted by NCES.

[3] Actual count/amount reported by state.

NOTE: All estimated data are state estimates, except where noted. Estimates are as of December 1999. Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates of Public Elementary/Secondary Education Survey," 1999–2000.

Overview of Public Elementary and Secondary Schools and Districts: School Year 1998–99

Lee Hoffman

This article was originally published as a Statistics in Brief report. The universe data are primarily from the following two components of the NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey." Technical notes and definitions from the original report have been omitted.

Types of Public Schools

The 50 states and the District of Columbia reported more than 90,000 public elementary/secondary schools in 1998–99. Most of these were regular schools, which offer a comprehensive curriculum and may provide a range of other programs and services as well. Considerably smaller numbers of schools focused primarily on special education, vocational/technical or career education, or alternative programs. Students in these specialized schools are often also enrolled in a regular school and reported only in the membership of that regular school.

Number of public elementary and secondary schools in 1998–99

	Total	Regular	Special	Vocational	Alternative
Total schools in United States	90,874	83,642	1,974	1,077	4,181
Reporting membership	88,548	82,962	1,625	356	3,605
Not reporting membership	2,326	680	349	721	576

Only those schools that reported membership are included in the following discussion and tables.

Student Membership and School Type

In the 1998–99 school year, 88,548 public schools provided instruction to 46.5 million students in the United States (table 1).[1] This was an increase of about 0.9 percent from the previous year's 46.1 million students and a gain of 1.0 percent from the 87,631 schools in 1997–98.[2] Most of these 1998–99 school year institutions were regular schools (82,962). Among the total number of schools for which student membership was reported were 1,625 schools whose major function was to provide special education for students with disabilities and 356 identified as vocational, technical, or career schools. Some 3,605 schools were reported to offer other alternative programs.

The great majority of public school students, 98.1 percent, were enrolled in regular schools. An additional 0.4 percent were in special education schools, 0.5 percent in vocational schools, and 1.1 percent in alternative schools. Kansas, Mississippi, New Hampshire, and North Dakota reported having only regular schools. Delaware, Massachusetts, and Ohio reported 3 percent or more of their students in vocational schools. A comparable percentage of students from the District of Columbia were in special education schools, and at least 3 percent of the students in Alaska, California, and Minnesota attended alternative schools.

Primary, Middle, and High Schools

Among the 88,548 public schools with students in membership during the 1998–99 school year, 58.3 percent spanned the traditional primary grades, typically beginning with prekindergarten or kindergarten and going no higher than grade 8 (table 2). About half (49.9 percent) of the nation's public school students were enrolled in these schools. An additional 17.4 percent of the schools covered the upper elementary and middle grades and offered instruction to 19.8 percent of public school students.

High schools represented 19.1 percent of the schools reported and enrolled 27.6 percent of the total number of students. Some 5.2 percent of schools followed some other grade configuration, including schools that spanned all of grades kindergarten through 12 and those that were ungraded.

Schools and Community Size

Table 3 shows that 28.9 percent of the students attended school in a large or midsize city, compared to 17.6 percent who were educated in rural schools. The urban fringes of large and midsize cities accounted for the greatest proportion of students (42.1 percent) and of schools (36.1 percent). Some 19.0 percent of schools—and 9.7 percent of students—were in rural settings that were not associated with an urban fringe area.

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[1] Although schools from the outlying areas, Bureau of Indian Affairs, and the Department of Defense Dependents Schools (overseas) are included in the tables, national totals are limited to the 50 states and the District of Columbia.

[2] Comparisons are based on the previous edition of this Statistics in Brief, which covers the 1997–98 school year: *Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98* (Hoffman 1999).

School District Size

School districts ranged greatly in size, as measured by the number of students in membership. A very few districts (24) enrolled 100,000 or more students, while a larger number (1,762) reported fewer than 150 students (table 4). While small in number, the largest districts served a considerable portion of students in America's public schools. Although only 1.7 percent of districts served 25,000 or more students, fully 32.8 percent of students received their education in these largest districts. To show the contrast from a different perspective, almost half of the school districts in the United States had fewer than 1,000 students in 1998–99. However, more than half of the public school students in this country attended schools in districts of 10,000 students or more.

School District Grade Spans

In 1998–99, there were 15,176 public education agencies providing education services directly to students in the United States. Some 678 of these were operated directly by state or federal agencies, or had a primary role other than that of administering regular educational services. However, the majority of public education agencies (14,498) were regular school districts providing education to children within their jurisdiction (table 5).

States vary in the organization of their regular education agencies. Hawaii and the District of Columbia each consist of a single K–12 school district. Twelve other states include only comprehensive K–12 school districts. On the other hand, in Montana and Vermont only 12.0 and 31.4 percent, respectively, of the students were served in this type of school district.

Among the 14,498 regular school districts with pupils in membership, 3,168 were responsible for only the elementary grades, beginning with grades prekindergarten, kindergarten, or 1 and ending at grade 8 or below (table 5). These districts enrolled 5.7 percent of the nation's public school students. An additional 561 agencies could be characterized as secondary school districts, with a low grade of 7 or higher and a high grade of 7 to 12. Some 2.3 percent of all students attended schools in these districts. An additional 116 districts had some other grade configuration. However, almost three out of four districts (10,653) provided instruction from the beginning of school through graduation. Fully 91.9 percent of all students were enrolled in these comprehensive school districts in 1998–99.

Title I, Charter, and Magnet Schools

School year 1998–99 was the first in which states were asked to "flag" Title I, magnet, and charter schools in their reports. Table 6 indicates that not all states were able to report these new items. Of those that did provide information, 21 states had one or more charter schools (with 144 schools, California had the greatest number), and 16 states identified magnet schools. California had the most magnet schools (472), followed by Illinois (315) and North Carolina (119). Among the 32 states that flagged schools eligible for Title I, 14 reported that at least half their student population was enrolled in these schools. The proportions were smaller for schools with a Title I schoolwide program. Only Mississippi had as many as half of its students in these schools.

Student Program Participation

Because participation in the Free Lunch Program depends on income, eligibility for this program is often used to estimate student needs. Seven states did not report free lunch eligibility data for at least 70 percent of their schools, so national totals could not be calculated (table 7). Within those states and schools that did provide this information, the proportion of students who were reported as eligible to receive a free lunch ranged from a low of 11.2 percent in New Hampshire to a high of 63.4 percent in Mississippi.

Nationally, about one in every eight students was reported to have an individualized education program (IEP), meaning that the student participates in special education services. The percentage of students with IEPs ranged from 4.9 percent in Michigan to 18.2 percent in New Mexico.

New items for 1998–99 asked for the numbers of students receiving services for limited English proficiency (LEP) and services as migrant students. Only 27 states answered the item about LEP program participation. In 1998–99, almost 1.4 million students received LEP services in California, as did more than 500,000 in Texas. Thirteen states reported the number of students provided with migrant services during the 1997–98 school year. California served some 192,000 migrant students, and Texas provided almost 74,000 migrant students with program services.

Student Race/Ethnicity

The proportion of students in different racial/ethnic categories did not change much between the 1997–98 and 1998–99 school years.[3] In 1998–99, some 1.2 percent of students were American Indian/Alaska Native (also 1.2 percent in the previous year), and 4.0 percent were Asian or Pacific Islander (3.9 percent in the previous year). The proportions for 1998–99 and 1997–98, respectively, were 15.1 percent and 14.5 percent for Hispanics; 17.3 percent and 17.1 percent for black, non-Hispanic; and 62.5 percent and 63.4 percent for white, non-Hispanic (data not shown).

Table 8 shows the number of minority students (all groups except white, non-Hispanic) and the percentage of students who are minority group members in cities, urban fringe areas, and small towns or rural areas. In all but five states the proportion of minority students is highest in cities. At least three-fourths of the students are minority group members in the large and midsize cities of six states—Georgia, Hawaii, Maryland, Mississippi, New Jersey, and New York—and in the District of Columbia.

References

Bairu, G. (2000). *Public School Student, Staff, and Graduate Counts by State: School Year 1998–99* (NCES 2000–330). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Hoffman, L. (1999). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98* (NCES 1999–322). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data sources: The following components of the NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey," 1997–98 and 1998–99; "Local Education Agency Universe Survey," 1998–99; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1997–98 and 1998–99.

For technical information, see the complete report:

Hoffman, L. (2000). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1998–99* (NCES 2000–333 [Revised]).

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To obtain the complete report (NCES 2000–333 [Revised]), visit the NCES Web Site (*http://nces.ed.gov*) or contact Lena McDowell (*lena_mcdowell@ed.gov*).

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[3] Data for 1997–98 are from *Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98* (Hoffman 1999); 1998–99 data are from *Public School Student, Staff, and Graduate Counts by State: School Year 1998–99* (Bairu 2000).

Table 1. — Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1998–99

State	Number of schools having membership	Total students	Type of school: Regular		Special education		Vocational education		Alternative education	
			Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
United States	88,548	46,534,687	82,962	98.1	1,625	0.4	356	0.5	3,605	1.1
Alabama	1,364	747,970	1,320	99.7	15	0.1	4	0.0	25	0.2
Alaska	497	135,373	449	92.4	2	0.3	4	0.4	42	6.9
Arizona	1,511	848,262	1,418	97.6	13	0.1	5	0.5	75	1.8
Arkansas	1,106	452,256	1,105	100.0	0	0.0	0	0.0	1	0.0
California	8,334	5,925,964	7,279	96.4	124	0.5	0	0.0	931	3.1
Colorado	1,539	699,135	1,462	98.7	8	0.0	3	0.1	66	1.2
Connecticut	1,069	544,698	986	96.5	21	0.6	17	1.9	45	1.1
Delaware	185	113,262	162	93.6	18	1.4	5	5.0	0	0.0
District of Columbia	164	71,889	148	95.7	10	3.1	0	0.0	6	1.2
Florida	3,044	2,337,633	2,801	98.7	96	0.5	30	0.2	117	0.6
Georgia	1,843	1,401,291	1,817	99.6	5	0.1	0	0.0	21	0.3
Hawaii	253	188,069	249	99.9	3	0.0	0	0.0	1	0.1
Idaho	649	244,722	582	98.3	11	0.1	0	0.0	56	1.6
Illinois	4,251	2,011,530	3,879	97.8	244	1.3	0	0.0	128	0.9
Indiana	1,886	988,094	1,820	99.4	19	0.2	1	0.0	46	0.4
Iowa	1,538	498,214	1,492	98.8	10	0.2	0	0.0	36	1.0
Kansas	1,437	472,353	1,437	100.0	0	0.0	0	0.0	0	0.0
Kentucky	1,346	655,687	1,285	99.6	8	0.1	1	0.0	52	0.3
Louisiana	1,500	768,734	1,385	98.3	35	0.3	5	0.1	75	1.3
Maine	690	210,503	686	100.0	4	0.0	0	0.0	0	0.0
Maryland	1,326	841,671	1,221	97.2	50	0.9	11	1.1	44	0.8
Massachusetts	1,874	962,317	1,798	96.1	1	0.0	43	3.5	32	0.5
Michigan	3,656	1,720,266	3,445	98.1	97	0.9	13	0.2	101	0.8
Minnesota	2,054	855,119	1,564	96.1	63	0.4	1	0.0	426	3.5
Mississippi	874	502,379	874	100.0	0	0.0	0	0.0	0	0.0
Missouri	2,221	912,445	2,104	98.8	57	0.8	6	0.2	54	0.2
Montana	886	159,988	881	99.9	2	0.0	0	0.0	3	0.1
Nebraska	1,333	291,140	1,276	99.5	57	0.5	0	0.0	0	0.0
Nevada	461	311,061	429	98.3	10	0.4	1	0.6	21	0.8
New Hampshire	516	204,713	516	100.0	0	0.0	0	0.0	0	0.0
New Jersey	2,317	1,268,996	2,186	97.6	83	0.7	48	1.8	0	0.0
New Mexico	745	328,753	698	98.3	14	0.5	0	0.0	33	1.2
New York	4,224	2,877,143	4,090	97.7	29	0.1	25	1.2	80	1.0
North Carolina	2,095	1,254,821	2,013	99.3	26	0.3	4	0.0	52	0.4
North Dakota	555	114,597	555	100.0	0	0.0	0	0.0	0	0.0
Ohio	3,732	1,842,559	3,628	96.8	1	0.0	73	3.0	30	0.2
Oklahoma	1,818	628,492	1,806	99.7	12	0.3	0	0.0	0	0.0
Oregon	1,271	542,809	1,173	98.0	15	0.3	0	0.0	83	1.7
Pennsylvania	3,139	1,816,414	3,100	98.3	12	1.0	14	0.6	13	0.1
Rhode Island	318	154,785	307	98.4	4	0.4	3	0.6	4	0.5
South Carolina	1,058	664,592	1,033	99.5	8	0.1	0	0.0	17	0.4
South Dakota	770	132,495	747	98.9	11	0.3	0	0.0	12	0.7
Tennessee	1,554	905,442	1,522	99.5	15	0.2	7	0.3	10	0.1
Texas	7,228	3,945,367	6,473	98.1	238	0.4	22	0.2	495	1.3
Utah	769	481,176	695	98.0	21	0.5	0	0.0	53	1.5
Vermont	358	105,120	320	98.6	37	1.4	0	0.0	1	0.0
Virginia	1,815	1,124,022	1,746	99.3	32	0.2	0	0.0	37	0.5
Washington	2,066	998,053	1,800	97.2	59	0.2	6	0.1	201	2.5
West Virginia	816	297,530	786	99.4	8	0.1	3	0.0	19	0.4
Wisconsin	2,109	879,542	2,045	99.4	13	0.1	1	0.0	50	0.4
Wyoming	384	95,241	369	98.9	4	0.2	0	0.0	11	0.9

See footnotes on second page of this table.

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Table 1. — Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1998–99—Continued

State	Number of schools having membership	Total students	Type of school: Regular: Number of schools	Regular: Percentage of students	Special education: Number of schools	Special education: Percentage of students	Vocational education: Number of schools	Vocational education: Parentage of students	Alternative education: Number of schools	Alternative education: Percentage of students
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs										
DOD Dependents Schools	154	78,170	154	100.0	0	0.0	0	0.0	0	0.0
Bureau of Indian Affairs	188	50,125	—	—	—	—	—	—	—	—
American Samoa	31	15,372	29	98.0	1	0.3	1	1.7	0	0.0
Guam	36	32,222	36	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	26	9,498	26	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1,519	613,862	1,473	98.5	28	0.4	8	0.7	10	0.4
Virgin Islands	35	20,976	32	93.2	0	0.0	1	6.3	2	0.5

— Distributions are not published for Bureau of Indian Affairs schools because data were available for only 38 of 188 schools.

NOTE: Table excludes 2,348 schools (22 of these in outlying areas) for which no students were reported in membership. U.S. totals exclude outlying areas. Although type of school is a mutually exclusive category, many regular schools include special, vocational, or alternative education programs. Percentages may not sum to 100 due to rounding. Percentages of less than 0.05 are rounded to 0.0. Total student membership is reported from the "State Nonfiscal Survey of Public Elementary/Secondary Education."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 2.— Percentage of public elementary and secondary schools providing instruction and of students in membership, by specified level of instruction and by state: School year 1998–99

State	Number of schools having membership	Percentage by instructional level: Primary: Schools	Primary: Students	Middle: Schools	Middle: Students	High: Schools	High: Students	Other: Schools	Other: Students
United States	88,548	58.3	49.9	17.4	19.8	19.1	27.6	5.2	2.7
Alabama	1,364	51.2	44.6	17.2	17.7	20.0	25.9	11.6	11.8
Alaska	497	36.0	44.1	7.4	13.4	14.5	24.9	42.1	17.7
Arizona	1,511	58.7	55.0	15.8	17.4	17.1	25.2	8.5	2.3
Arkansas	1,106	51.9	47.5	16.3	19.5	29.4	29.0	2.4	4.0
California	8,334	63.1	52.4	14.7	18.2	18.5	27.0	3.7	2.3
Colorado	1,539	58.6	50.0	17.6	20.6	19.6	27.2	4.2	2.2
Connecticut	1,069	61.9	51.4	17.4	20.7	16.6	26.8	4.1	1.2
Delaware	185	50.3	41.0	24.3	28.3	17.8	29.2	7.6	1.5
District of Columbia	164	67.1	64.7	13.4	14.5	12.8	17.4	6.7	3.3
Florida	3,044	54.1	49.3	16.0	21.7	13.7	25.4	16.2	3.6
Georgia	1,843	62.2	51.1	18.7	20.4	15.3	24.8	3.8	3.7
Hawaii	253	69.2	55.0	12.6	14.1	14.2	28.8	4.0	2.1
Idaho	649	52.2	47.7	17.6	21.5	25.1	28.3	5.1	2.4
Illinois	4,251	61.5	55.9	17.0	15.5	17.5	26.7	4.0	1.8
Indiana	1,886	61.5	49.9	17.1	18.3	18.8	30.4	2.7	1.4
Iowa	1,538	54.2	45.9	19.1	19.8	24.4	32.4	2.3	2.0
Kansas	1,437	57.4	49.2	17.2	19.6	24.8	30.8	0.6	0.3
Kentucky	1,346	58.1	49.2	17.0	20.1	22.5	30.3	2.4	0.4
Louisiana	1,500	53.3	48.0	19.3	19.8	16.5	25.5	11.0	6.7
Maine	690	63.8	47.8	18.1	22.0	15.7	28.3	2.5	1.9
Maryland	1,326	64.6	51.1	17.5	20.8	15.2	27.1	2.8	1.0
Massachusetts	1,874	64.8	50.0	17.2	20.4	16.5	28.5	1.4	1.1
Michigan	3,656	58.8	49.1	17.1	20.6	18.7	27.6	5.3	2.7
Minnesota	2,054	51.1	46.9	13.5	19.1	28.6	32.1	6.8	1.9
Mississippi	874	49.8	44.6	19.7	19.3	20.8	25.5	9.7	10.6

See footnotes on second page of this table.

Table 2.— Percentage of public elementary and secondary schools providing instruction and of students in membership, by specified level of instruction and by state: School year 1998–99—Continued

State	Number of schools having membership	Percentage by instructional level							
		Primary		Middle		High		Other	
		Schools	Students	Schools	Students	Schools	Students	Schools	Students
Missouri	2,221	54.8	49.0	16.2	19.5	22.3	28.8	6.7	2.7
Montana	886	52.8	47.6	26.2	20.1	19.8	31.1	1.2	1.1
Nebraska	1,333	68.0	50.6	8.0	14.9	23.0	34.0	1.1	0.5
Nevada	461	63.1	52.3	15.4	21.1	15.6	24.2	5.9	2.5
New Hampshire	516	66.7	48.3	18.2	23.7	15.1	28.0	0.0	0.0
New Jersey	2,317	62.6	52.3	17.7	18.8	13.6	26.0	6.1	3.0
New Mexico	745	58.0	47.8	20.9	22.5	18.7	27.2	2.4	2.5
New York	4,224	58.2	49.9	16.9	19.0	18.1	26.8	6.8	4.4
North Carolina	2,095	59.9	51.0	20.0	21.6	16.1	25.9	4.0	1.5
North Dakota	555	58.2	49.6	6.7	12.3	34.1	35.6	1.1	2.5
Ohio	3,732	58.4	46.7	19.7	20.6	20.4	31.9	1.5	0.9
Oklahoma	1,818	54.3	51.5	19.2	20.7	25.4	25.6	1.1	2.2
Oregon	1,271	59.7	47.5	17.4	21.0	18.2	29.3	4.7	2.2
Pennsylvania	3,139	61.5	47.5	17.4	20.1	19.1	29.8	2.0	2.6
Rhode Island	318	67.3	49.4	17.3	22.6	13.8	27.7	1.6	0.2
South Carolina	1,058	55.6	46.7	23.2	24.0	19.3	28.1	2.0	1.2
South Dakota	770	51.0	46.9	23.5	21.7	23.5	30.8	1.9	0.6
Tennessee	1,554	60.6	52.5	16.9	17.6	18.7	27.3	3.7	2.6
Texas	7,228	50.7	48.4	20.8	22.9	18.9	25.6	9.6	3.1
Utah	769	59.3	50.6	16.5	21.4	19.1	25.7	5.1	2.3
Vermont	358	73.2	52.7	7.3	9.5	13.4	30.7	6.1	7.1
Virginia	1,815	62.3	48.9	18.1	21.4	16.6	28.8	3.0	0.9
Washington	2,066	55.8	49.0	16.6	20.1	20.4	27.8	7.3	3.1
West Virginia	816	63.5	48.5	16.7	20.4	16.5	29.3	3.3	1.8
Wisconsin	2,109	58.2	47.2	17.6	19.5	21.7	31.5	2.5	1.8
Wyoming	384	58.9	46.4	19.5	22.9	18.2	28.7	3.4	2.0
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs									
DOD Dependents Schools	154	55.8	57.3	11.7	11.6	23.4	21.3	9.1	9.8
Bureau of Indian Affairs	188	—	—	—	—	—	—	—	—
American Samoa	31	74.2	72.1	3.2	4.7	19.4	22.9	3.2	0.3
Guam	36	69.4	51.7	19.4	22.4	11.1	25.9	0.0	0.0
Northern Marianas	26	84.6	64.4	3.8	11.9	11.5	23.7	0.0	0.0
Puerto Rico	1,519	59.2	46.5	14.4	16.9	11.5	19.7	14.9	16.8
Virgin Islands	35	65.7	54.1	20.0	17.1	11.4	27.3	2.9	1.4

— Distributions are not published for Bureau of Indian Affairs schools because data were available for only 38 of 188 schools.

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); and other (any configuration not falling within the previous three, including ungraded schools). For states that did not provide a grade span, grade span was determined by the highest and lowest grades in which students were reported. Table excludes 2,348 schools (22 in outlying areas) for which no students were reported in membership. U.S. totals exclude outlying areas. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1998–99.

Table 3.—Number and percentage distribution of public schools with membership and percentage distribution of students in membership, by community type: School year 1998–99

Community type	Number of schools	Percentage of schools	Percentage of students
United States	88,519	100.0	100.0
Large city	10,334	11.7	15.5
Midsize city	10,809	12.2	13.4
Urban fringe, large city	22,439	25.3	30.9
Urban fringe, midsize city	9,550	10.8	11.2
Large town	1,132	1.3	1.2
Small town	10,716	12.1	10.2
Rural	16,817	19.0	9.7
Rural urban fringe	6,722	7.6	7.9

NOTE: Community types classify the location of a school relative to populous areas. Table includes the 50 states and the District of Columbia. Table excludes 2,326 schools for which no students were reported in membership. Table excludes 29 schools for which no locale codes could be assigned. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1998–99.

Table 4.—Number and percentage distribution of regular public elementary and secondary school districts and students, by district membership size: School year 1998–99

District membership size	Number of districts	Percentage of districts	Percentage of students
United States	14,498	100.0	100.0
100,000 or more	24	0.2	13.2
25,000 to 99,999	212	1.5	19.6
10,000 to 24,999	574	4.0	18.4
7,500 to 9,999	322	2.2	6.0
5,000 to 7,499	704	4.9	9.2
2,500 to 4,999	2,062	14.2	15.5
2,000 to 2,499	831	5.7	4.0
1,500 to 1,999	1,084	7.5	4.0
1,000 to 1,499	1,581	10.9	4.2
800 to 999	824	5.7	1.6
600 to 799	968	6.7	1.4
450 to 599	929	6.4	1.0
300 to 449	1,138	7.8	0.9
150 to 299	1,483	10.2	0.7
1 to 149	1,762	12.2	0.3

NOTE: Table includes the 50 states and the District of Columbia, and excludes 393 regular school districts for which no students were reported in membership. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1998–99.

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Table 5.—Number of regular public school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1998–99

		Grade span							
		PK, K, 1 to 8 or below		PK, K, 1 to 9–12		7, 8, 9 to 7–12		Other	
State	Total districts	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students
United States	14,498	3,168	5.7	10,653	91.9	561	2.3	116	0.1
Alabama	128	0	0.0	128	100.0	0	0.0	0	0.0
Alaska	53	0	0.0	53	100.0	0	0.0	0	0.0
Arizona	353	159	28.8	113	61.0	47	9.5	34	0.7
Arkansas	310	0	0.0	310	100.0	0	0.0	0	0.0
California	988	578	20.8	317	69.9	93	9.3	0	0.0
Colorado	176	1	0.0	175	100.0	0	0.0	0	0.0
Connecticut	166	46	4.9	112	93.6	8	1.5	0	0.0
Delaware	19	0	0.0	16	94.9	3	5.1	0	0.0
District of Columbia	1	0	0.0	1	100.0	0	0.0	0	0.0
Florida	67	0	0.0	67	100.0	0	0.0	0	0.0
Georgia	180	7	0.2	173	99.8	0	0.0	0	0.0
Hawaii	1	0	0.0	1	100.0	0	0.0	0	0.0
Idaho	112	5	0.1	107	99.9	0	0.0	0	0.0
Illinois	936	385	25.4	412	63.6	123	10.8	16	0.2
Indiana	292	1	0.0	291	100.0	0	0.0	0	0.0
Iowa	375	0	0.0	375	100.0	0	0.0	0	0.0
Kansas	304	0	0.0	304	100.0	0	0.0	0	0.0
Kentucky	176	5	0.3	171	99.7	0	0.0	0	0.0
Louisiana	70	2	0.1	68	99.9	0	0.0	0	0.0
Maine	224	106	11.7	112	87.0	5	1.1	1	0.1
Maryland	24	0	0.0	24	100.0	0	0.0	0	0.0
Massachusetts	244	67	5.1	176	94.9	1	0.1	0	0.0
Michigan	687	110	1.3	542	98.3	20	0.1	15	0.2
Minnesota	387	32	0.6	338	99.2	12	0.2	5	0.0
Mississippi	152	1	0.0	148	99.7	3	0.2	0	0.0
Missouri	523	73	1.3	450	98.7	0	0.0	0	0.0
Montana	456	291	60.7	55	12.0	110	27.3	0	0.0
Nebraska	596	312	3.4	266	95.3	18	1.3	0	0.0
Nevada	17	1	0.0	16	100.0	0	0.0	0	0.0
New Hampshire	165	89	19.8	65	74.2	9	4.2	2	1.8
New Jersey	581	290	18.8	214	73.1	50	6.6	27	1.6
New Mexico	89	0	0.0	89	100.0	0	0.0	0	0.0
New York	705	42	1.0	645	98.3	10	0.6	8	0.1
North Carolina	120	2	0.0	117	100.0	0	0.0	1	0.0
North Dakota	229	48	2.4	174	97.0	6	0.6	1	0.0
Ohio	625	13	0.1	611	99.9	0	0.0	1	0.0
Oklahoma	547	115	3.5	430	96.4	0	0.0	2	0.1
Oregon	197	18	0.1	178	99.9	1	0.0	0	0.0
Pennsylvania	500	2	0.1	498	99.9	0	0.0	0	0.0
Rhode Island	36	4	1.5	31	97.5	0	0.0	1	1.0
South Carolina	90	0	0.0	90	100.0	0	0.0	0	0.0
South Dakota	173	6	1.0	167	99.0	0	0.0	0	0.0
Tennessee	137	12	1.9	125	98.1	0	0.0	0	0.0
Texas	1,042	67	0.3	975	99.7	0	0.0	0	0.0
Utah	40	0	0.0	40	100.0	0	0.0	0	0.0
Vermont	248	182	42.9	34	31.4	31	23.8	1	1.9
Virginia	132	0	0.0	132	100.0	0	0.0	0	0.0
Washington	296	47	1.0	248	99.0	0	0.0	1	0.0
West Virginia	55	0	0.0	55	100.0	0	0.0	0	0.0
Wisconsin	426	47	2.7	368	96.1	11	1.2	0	0.0
Wyoming	48	2	0.6	46	99.4	0	0.0	0	0.0

See footnotes on second page of this table.

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Table 5.—Number of regular public school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1998–99—Continued

State	Total districts	Grade span							
		PK, K, 1 to 8 or below		PK, K, 1 to 9–12		7, 8, 9 to 7–12		Other	
		Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs									
DOD Dependents Schools	12	0	0.0	12	100.0	0	0.0	0	0.0
Bureau of Indian Affairs	24	0	0.0	24	100.0	0	0.0	0	0.0
American Samoa	1	0	0.0	1	100.0	0	0.0	0	0.0
Guam	1	0	0.0	1	100.0	0	0.0	0	0.0
Northern Marianas	1	0	0.0	1	100.0	0	0.0	0	0.0
Puerto Rico	1	0	0.0	1	100.0	0	0.0	0	0.0
Virgin Islands	1	0	0.0	1	100.0	0	0.0	0	0.0

NOTE: For states that did not provide a grade span, grade span was determined by the highest and lowest grades served among all schools associated with the district. "Other" includes all grade configurations not reported in the specified categories and includes ungraded districts. Table excludes 393 regular school districts for which no students were reported in membership. U.S. totals exclude outlying areas. Table includes 12 Defense Department school districts for military personnel overseas, which are technically federally operated agencies. Percentages may not sum to 100 due to rounding. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1998–99.

Table 6.—Number of Title I, magnet, and charter schools and percentage of students served, by state: School year 1998–99

State	Title I eligible schools		Title I schoolwide schools		Magnet schools		Charter schools	
	Number of schools[a]	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
United States	—	—	—	—	—	—	—	—
Alabama	—	—	—	—	34	2.5	—	—
Alaska	—	—	—	—	—	—	16	1.6
Arizona	—	—	—	—	—	—	—	—
Arkansas	773	63.4	350	24.9	19	2.1	—	—
California	4,416	54.0	—	—	472	9.3	144	1.2
Colorado	—	—	—	—	—	—	—	—
Connecticut	417	36.7	84	8.6	12	0.7	16	0.3
Delaware	105	54.0	12	5.6	1	0.3	4	0.9
District of Columbia	—	—	—	—	—	—	—	—
Florida	924	28.5	814	25.0	—	—	72	0.4
Georgia	863	39.1	454	19.6	26	1.4	12	0.6
Hawaii	139	47.5	121	41.3	—	—	2	0.4
Idaho	—	—	—	—	—	—	2	0.0
Illinois	—	—	—	—	315	11.6	12	0.2
Indiana	1,017	46.3	130	5.8	—	—	—	—
Iowa	758	40.2	83	5.1	—	—	—	—
Kansas	651	35.3	—	—	—	—	1	0.0
Kentucky	862	57.4	643	40.8	—	—	—	—
Louisiana	898	53.2	42	2.5	63	5.5	11	0.2
Maine	438	52.5	—	—	1	—	1	—
Maryland	412	26.1	300	19.4	—	—	—	—
Massachusetts	1,793	97.3	2	0.0	8	0.5	32	1.0
Michigan	—	—	—	—	—	—	—	—
Minnesota	—	—	—	—	—	—	—	—
Mississippi	653	68.3	548	56.2	5	0.4	—	—
Missouri	1,143	46.2	324	12.4	55	3.1	—	—
Montana	635	75.9	89	10.1	—	—	—	—
Nebraska	695	80.5	82	9.2	—	—	—	—
Nevada	100	18.7	72	14.1	7	1.4	1	0.1
New Hampshire	—	—	—	—	—	—	—	—

See footnotes on second page of this table.

Table 6.—Number of Title I, magnet, and charter schools and percentage of students served, by state: School year 1998–99—Continued

State	Title I eligible schools		Title I schoolwide schools		Magnet schools		Charter schools	
	Number of schools*	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
New Jersey	—	—	—	—	—	—	—	—
New Mexico	530	60.9	161	17.8	—	—	4	1.3
New York	—	—	—	—	—	—	—	—
North Carolina	991	39.3	593	22.0	119	6.1	59	0.7
North Dakota	—	—	—	—	—	—	—	—
Ohio	2,644	64.5	1,103	26.7	—	—	15	0.1
Oklahoma	1,143	56.6	619	28.4	—	—	—	—
Oregon	614	42.0	191	13.3	—	—	—	—
Pennsylvania	—	—	—	—	—	—	—	—
Rhode Island	—	—	—	—	—	—	2	0.2
South Carolina	499	38.4	419	30.7	—	—	3	0.0
South Dakota	387	46.7	76	8.4	—	—	—	—
Tennessee	—	—	—	—	6	0.4	—	—
Texas	4,132	56.1	3,471	47.9	—	—	66	0.3
Utah	—	—	—	—	—	—	—	—
Vermont	—	—	—	—	—	—	—	—
Virginia	141	5.9	54	2.2	18	1.1	—	—
Washington	—	—	—	—	—	—	—	—
West Virginia	427	41.2	326	29.5	—	—	—	—
Wisconsin	1,085	46.2	232	12.7	—	—	27	0.2
Wyoming	148	34.9	43	10.4	—	—	—	—
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs								
DOD Dependents Schools	—	—	—	—	—	—	—	—
Bureau of Indian Affairs	—	—	—	—	—	—	—	—
American Samoa	31	100.0	31	100.0	—	—	—	—
Guam	—	—	—	—	—	—	—	—
Northern Marianas	—	—	—	—	—	—	—	—
Puerto Rico	—	—	—	—	—	—	—	—
Virgin Islands	35	100.0	16	52.1	—	—	—	—

— Less than 70 percent of schools in noted states reported data; symbol does not distinguish states with missing data from those that do not operate that type of school. U.S. total not shown.

*Number of Title I eligible schools includes those with and without schoolwide Title I programs.

NOTE: Percentages are based on schools reporting. Percentages may not sum to 100 due to rounding. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1998–99.

Table 7.—Number and percentage of public school students participating in selected programs, by state: School year 1998–99

State	Students with IEPs		Students receiving LEP services		Students receiving migrant services[1]		Students eligible for free or reduced-price meals	
	Number of students	Percentage of students	Number of students	Percentage of students	Number of students	Percentage of students	Number of students	Percentage of students
United States	5,698,757	12.3	—	—	—	—	—	—
Alabama	99,038	13.4	9,192	1.2	—	—	332,119	45.1
Alaska	17,723	13.1	—	—	—	—	34,695	25.6
Arizona	86,135	10.1	—	—	—	—	—	—
Arkansas	50,883	11.3	7,914	1.7	—	—	203,972	45.1
California	648,404	11.1	1,399,210	23.9	192,086	3.3	2,770,686	47.4
Colorado	71,170	10.2	—	—	—	—	[2]145,831	[2]20.9
Connecticut	76,757	14.1	19,729	3.6	4,022	0.7	135,590	24.9
Delaware	14,639	12.9	1,942	1.7	529	0.5	38,240	33.7
District of Columbia	8,178	11.4	—	—	—	—	—	—
Florida	342,183	14.6	148,281	6.3	39,536	1.7	1,025,470	43.9

See footnotes on second page of this table.

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Table 7.—Number and percentage of public school students participating in selected programs, by state: School year 1998-99—Continued

State	Students with IEPs		Students receiving LEP services		Students receiving migrant services[1]		Students eligible for free or reduced-price meals	
	Number of students	Percentage of students	Number of students	Percentage of students	Number of students	Percentage of students	Number of students	Percentage of students
Georgia	152,269	10.9	22,769	1.6	7,450	0.5	606,636	43.3
Hawaii	19,462	10.3	12,897	6.9	—	—	71,533	38.0
Idaho	27,399	11.2	16,338	6.7	8,898	3.6	77,928	31.9
Illinois	272,984	13.6	126,533	6.3	—	—	—	—
Indiana	145,574	14.7	25,032	2.5	—	—	270,695	27.4
Iowa	67,881	13.6	8,044	1.6	—	—	136,572	27.6
Kansas	57,886	12.3	—	—	—	—	150,720	32.4
Kentucky	87,723	13.4	—	—	—	—	301,699	47.4
Louisiana	93,639	12.2	—	—	4,761	0.6	440,644	57.4
Maine	30,969	14.7	—	—	—	—	64,894	30.9
Maryland	110,560	13.1	17,282	2.1	—	—	256,441	30.5
Massachusetts	164,943	17.6	122,891	13.1	1,786	0.2	193,917	20.7
Michigan	82,882	4.9	—	—	—	—	[2]423,813	[2]25.0
Minnesota	108,883	12.7	—	—	—	—	[2]160,110	[2]18.7
Mississippi	61,709	12.3	—	—	—	—	319,509	63.4
Missouri	131,776	14.4	7,269	0.8	2,356	0.3	297,845	32.7
Montana	18,569	11.6	—	—	—	—	49,028	30.6
Nebraska	43,334	14.9	7,275	2.5	—	—	86,140	29.6
Nevada	33,294	10.7	—	—	—	—	85,911	27.5
New Hampshire	27,488	13.4	—	—	—	—	[2]22,888	[2]11.2
New Jersey	83,806	6.7	—	—	—	—	[2]297,549	[2]23.5
New Mexico	59,680	18.2	—	—	—	—	160,834	48.9
New York	417,112	14.5	—	—	—	—	[2]1,065,898	[2]37.1
North Carolina	163,712	13.0	28,709	2.3	—	—	481,353	38.4
North Dakota	13,028	11.3	—	—	—	—	[2]23,748	[2]20.7
Ohio	221,115	12.0	341	0.0	—	—	500,771	26.5
Oklahoma	80,121	12.7	33,246	5.3	—	—	287,773	45.8
Oregon	59,814	11.0	35,323	6.5	16,472	3.0	178,245	32.8
Pennsylvania	200,439	11.0	—	—	—	—	—	—
Rhode Island	27,691	17.9	9,248	6.0	160	0.1	50,808	32.8
South Carolina	87,528	13.3	3,067	0.5	—	—	301,670	46.0
South Dakota	15,408	11.6	2,811	2.1	324	0.2	39,993	30.2
Tennessee	126,848	14.2	—	—	—	—	—	—
Texas	483,637	12.3	533,741	13.5	73,670	1.9	1,776,756	45.0
Utah	55,251	11.5	38,269	8.0	—	—	134,292	28.0
Vermont	11,980	11.4	—	—	—	—	—	—
Virginia	152,827	13.6	26,525	2.4	—	—	336,578	30.0
Washington	106,530	10.7	—	—	—	—	—	—
West Virginia	49,936	16.8	—	—	—	—	146,941	49.4
Wisconsin	115,803	13.2	—	—	—	—	224,132	25.5
Wyoming	12,157	12.8	2,338	2.5	—	—	26,706	28.1
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs								
DOD Dependents Schools	7,326	9.6	3,444	4.5	3,305	4.5	—	—
Bureau of Indian Affairs	—	—	—	—	—	—	—	—
American Samoa	584	3.8	13,066	85.0	0	0.0	14,590	94.9
Guam	2,267	7.0	6,806	21.1	0	0.0	11,558	35.9
Northern Marianas	431	4.5	—	—	—	—	[2]4,232	[2]44.6
Puerto Rico	11,960	2.0	—	—	—	—	[2]492,925	[2]80.3
Virgin Islands	1,591	7.6	1,379	6.6	—	—	—	—

— Less than 70 percent of schools or agencies in noted states reported data. U.S. total not shown.

[1] Receipt of migrant services was reported for the previous (1997-98) school year. Migrant students include those who were enrolled at any time during the regular school year.

[2] State may not have reported students eligible for reduced-price meals.

NOTE: Percentages are based on schools and agencies reporting. Percentages may not sum to 100 due to rounding. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1998–99.

Table 8.—Number of minority public school students, by state, and percentage of minority enrollment, by community type and state: School year 1998–99

State	Total students	Number of minority students	Percentage of minority enrollment by community type: City, large and midsize	Urban fringe of city	Small town or rural
United States	46,534,687	—	—	—	—
Alabama	747,970	283,374	65.2	25.0	32.5
Alaska	135,373	50,750	34.4	0.0	39.3
Arizona	848,262	381,036	47.1	39.6	47.1
Arkansas	452,256	123,190	43.9	12.7	23.8
California	5,925,964	3,618,105	72.3	58.4	39.4
Colorado	699,135	205,783	43.1	24.9	19.6
Connecticut	544,698	157,098	68.0	17.8	7.3
Delaware	113,262	42,531	50.8	36.5	29.4
District of Columbia	71,889	68,830	95.7	0.0	100.0
Florida	2,337,633	1,045,499	49.1	47.4	29.6
Georgia	1,401,291	610,484	80.4	43.3	34.3
Hawaii	188,069	148,862	81.8	78.8	77.7
Idaho	244,722	31,489	—	—	—
Illinois	2,011,530	776,497	74.3	26.4	9.1
Indiana	988,094	150,770	39.1	10.1	3.9
Iowa	498,214	42,878	19.9	5.5	4.6
Kansas	472,353	91,097	40.0	9.8	13.5
Kentucky	655,687	73,027	30.3	14.6	5.6
Louisiana	768,734	386,869	72.1	39.5	40.1
Maine	210,503	6,339	7.8	2.4	2.2
Maryland	841,671	378,391	75.0	44.6	19.7
Massachusetts	962,317	220,959	54.0	11.4	5.9
Michigan	1,720,266	432,747	70.9	14.6	6.3
Minnesota	855,119	—	—	—	—
Mississippi	502,379	262,573	76.4	28.9	54.6
Missouri	912,445	180,811	46.7	20.4	6.4
Montana	159,988	21,049	10.8	9.5	14.0
Nebraska	291,140	44,133	25.4	10.6	6.4
Nevada	311,061	120,607	46.3	40.7	21.5
New Hampshire	204,713	7,852	10.3	3.1	2.0
New Jersey	1,268,996	487,582	77.9	35.5	14.0
New Mexico	328,753	206,597	60.1	72.3	61.5
New York	2,877,143	1,277,747	79.3	19.7	6.8
North Carolina	1,254,821	470,197	51.0	31.0	34.2
North Dakota	114,597	11,611	7.9	6.1	12.1
Ohio	1,842,559	341,359	51.9	11.4	3.6
Oklahoma	628,492	207,210	43.9	25.2	31.8
Oregon	542,809	92,746	23.1	16.3	13.8
Pennsylvania	1,816,414	374,856	63.3	10.9	4.6
Rhode Island	154,785	36,569	49.4	10.8	4.0
South Carolina	664,592	285,761	54.2	33.6	49.7
South Dakota	132,495	16,548	14.6	6.2	12.3
Tennessee	905,442	238,991	58.8	13.1	10.1
Texas	3,945,367	2,203,677	73.1	41.3	43.2
Utah	481,176	57,994	23.4	9.6	9.1
Vermont	105,120	3,058	12.0	4.2	2.1
Virginia	1,124,022	394,707	57.2	31.5	21.7
Washington	998,053	238,062	34.7	22.8	17.5
West Virginia	297,530	15,123	10.4	5.1	4.1
Wisconsin	879,542	159,262	43.1	8.2	5.7
Wyoming	95,241	10,843	14.0	13.9	10.4

See footnotes on second page of this table.

Table 8.—Number of minority public school students, by state, and percentage of minority enrollment, by community type and state: School year 1998–99—Continued

State	Total students	Number of minority students	Percentage of minority enrollment by community type		
			City, large and midsize	Urban fringe of city	Small town or rural
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs					
DOD Dependents Schools	78,170	25,693	—	—	—
Bureau of Indian Affairs	50,125	—	—	—	—
American Samoa	15,372	15,372	—	—	—
Guam	32,222	31,517	—	—	—
Northern Marianas	9,498	9,420	—	—	—
Puerto Rico	613,862	613,862	—	—	—
Virgin Islands	20,976	20,788	—	—	—

— Less than 70 percent of schools in noted states reported. U.S. total not shown.

NOTE: Percentages are based on schools reporting. U.S. totals exclude outlying areas. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Public School Student, Staff, and Graduate Counts by State: School Year 1998–99

Ghedam Bairu

This article was originally published as a Statistics in Brief report. The universe data are from the NCES Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education." Technical notes and definitions from the original report have been omitted.

How many students were enrolled in public elementary and secondary schools in 1998–99? How many staff members were paid to teach, supervise, and provide support services for education? How many students graduated from high school in the previous year, 1997–98? What was the racial/ethnic background of students enrolled in public schools in 1998–99? The information to answer these and other questions is reported in the National Center for Education Statistics (NCES) "State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 1998–99."

How Many Students Were Enrolled in Public Elementary and Secondary Schools?

In school year 1998–99, there were 46.5 million students enrolled in public elementary and secondary schools in the 50 states and the District of Columbia (table 1). Of these students, 25.9 million were in prekindergarten through grade 6, an additional 20 million were in grades 7 through 12, and the remaining 0.7 million were ungraded students.*

California had the most public elementary and secondary school students (5,926,000), followed by Texas (3,945,000) and New York (2,877,000). The three lowest student counts were in the District of Columbia (72,000), Wyoming (95,000), and Vermont (105,000).

How Many Teachers Were There?

About 2.8 million full-time-equivalent teachers provided instruction in public elementary and secondary schools in the 1998–99 school year (table 2). Among this group, 1,568,000 were elementary school teachers (including prekindergarten and kindergarten teachers) and 1,013,000 were secondary school teachers. The remaining 245,000 teachers taught ungraded classes or were not assigned a specific grade.

The ratio of total students to total teachers for the nation was 16.5 students per teacher. These ratios ranged from lows of 12.8 students per teacher in Vermont and 13.2 in Maine to highs of 22.4 in Utah and 21.0 in California. The median student/teacher ratio was 15.7:1; that is, about half of the states had a student/teacher ratio equal to or greater than 15.7:1, and half had a lower ratio. Student/teacher ratio should not be interpreted as average class size since not all teachers are assigned to a class (for example, music and reading teachers in elementary schools).

How Many Staff Supervised or Provided Support Services for Public Education?

In addition to the teachers enumerated previously, about 587,000 instructional aides directly assisted teachers in providing instruction (table 3). An additional 37,000 instructional coordinators and supervisors helped teachers through curriculum development and inservice training. Support staff for students included 93,000 guidance counselors and 52,000 librarians. This translates to about 500 students for every guidance counselor reported, and 891 students for each librarian. An additional 1,281,000 staff members provided support services for students. These services included food, health, library assistance, maintenance, transportation, security, and other services in the nation's public schools. There were 129,000 school administrators (mostly principals and assistant principals), 51,000 school district administrators, and about 360,000 administrative support staff.

The relative distribution of all staff is illustrated in figure 1. Instructional staff (teachers, instructional aides, and coordinators) made up 63.7 percent of all staff. Another 26.3 percent of all staff (librarians, counselors, psychologists, and other support staff) provided support services to schools and students. Administrators and administrative support staff made up 10 percent of all education staff. On the average, there were 16 teachers and 13 other staff for each administrator. All of these distributions and ratios vary greatly from state to state.

How Many Students Graduated From High School During the 1997–98 School Year?

Some 2,458,000 students received regular high school diplomas in the 50 states and the District of Columbia during the 1997–98 school year and subsequent summer (table 4). An additional 141,000 students received high school equivalency certificates (this group includes only those who were 19 or younger). Finally, some 38,000 "other high school completers" received a certificate of attendance or some other high school completion certificate instead of a regular diploma. (Note that some states grant only regular diplomas and the high school equivalency certificates.) National totals for both high school equivalency certificate recipients and "other high school completers" represent an undercount due to missing data in some states.

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*Throughout this report, the five outlying areas, the Department of Defense Dependents Schools (overseas), and the Bureau of Indian Affairs schools are not included in national totals.

What Is the Racial/Ethnic Background of Students Enrolled in Public Schools?

In school year 1998–99, there were 46.5 million students enrolled in public elementary and secondary schools in the 50 states and the District of Columbia. Of these students, 533,000 were American Indian/Alaska Natives; 1,828,000 were Asian/Pacific Islanders; 6,939,000 were Hispanics; 7,923,000 were black, non-Hispanics; and 29,142,000 were white, non-Hispanics (table 5).

Table 6 presents the numbers of students receiving a regular high school diploma by racial/ethnic category for 1997–98. The U.S. totals could not be computed by race/ethnicity because data were missing for nine states.

Data source: The NCES Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1994–95, 1997–98, and 1998–99.

For technical information, see the complete report:

Bairu, G. (2000). *Public School Student, Staff, and Graduate Counts by State: School Year 1998–99* (NCES 2000-330).

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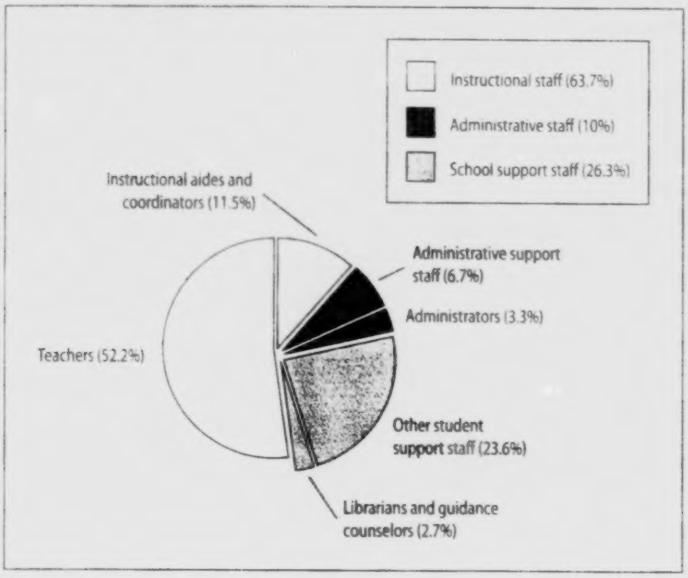
To obtain the complete report (NCES 2000-330), visit the NCES Web Site (*http://nces.ed.gov*) or contact Lena McDowell (*lena_mcdowell@ed.gov*).

Figure 1.—Distribution of elementary and secondary education staff by category: School year 1998–99



NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 1.—Public school student membership, by grade and state: Fall 1998

State	Total student membership	Pre-kindergarten	Kinder-garten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
United States	[1]46,534,687	[1]728,180	3,442,584	3,727,316	3,681,589	3,695,789	3,591,911	3,519,779
Alabama	[1]747,970	[1]10,331	58,055	63,634	60,341	60,458	58,610	57,436
Alaska	135,373	2,017	9,838	10,641	10,754	10,818	10,555	10,528
Arizona	848,262	5,209	65,312	72,179	71,669	70,193	67,764	66,336
Arkansas	452,256	1,390	34,120	36,162	35,599	35,822	35,034	34,211
California	[1]5,925,964	[1]81,853	459,262	485,781	487,454	489,702	462,241	451,602
Colorado	699,135	13,068	50,859	55,589	55,284	55,304	54,382	54,068
Connecticut	544,698	10,056	42,500	44,936	44,398	45,154	44,520	43,559
Delaware	113,262	602	8,025	9,307	8,996	8,674	8,538	8,834
District of Columbia	71,889	4,831	6,446	7,094	6,772	6,101	5,607	4,608
Florida	2,337,633	53,969	174,470	184,802	186,394	188,445	186,203	182,770
Georgia	1,401,291	30,779	112,287	114,855	114,454	115,495	112,226	109,053
Hawaii	188,069	674	15,019	15,698	15,894	16,050	15,215	14,840
Idaho	244,722	2,123	17,318	18,623	18,449	18,901	18,510	18,753
Illinois	2,011,530	59,389	150,953	162,128	160,498	165,485	152,841	149,279
Indiana	988,094	5,516	71,974	81,464	79,691	78,820	77,624	75,727
Iowa	498,214	4,975	35,772	35,699	35,866	36,500	35,776	35,106
Kansas	472,353	2,595	31,279	35,472	35,061	35,599	35,197	35,357
Kentucky	655,687	16,864	46,900	[2]51,451	[2]50,535	[2]50,710	48,707	46,599
Louisiana	768,734	16,486	58,922	62,808	59,447	58,493	57,476	56,507
Maine	[4]210,503	1,031	14,698	15,995	15,867	16,339	16,540	16,833
Maryland	841,671	20,013	57,813	66,761	67,387	68,479	67,230	65,175
Massachusetts	962,317	18,884	71,390	78,873	78,112	79,612	77,943	75,873
Michigan	[1]1,720,266	[1]23,761	131,021	133,023	134,126	134,512	127,655	123,216
Minnesota	855,119	9,063	60,876	61,879	62,241	64,530	63,945	63,859
Mississippi	[4]502,379	1,548	39,509	43,366	41,017	40,376	38,471	37,974
Missouri	912,445	16,300	67,335	72,630	70,929	70,269	69,223	67,983
Montana	159,988	515	10,848	12,002	11,580	11,969	11,808	12,128
Nebraska	291,140	4,595	21,145	21,198	21,445	22,023	21,378	21,275
Nevada	311,061	2,140	23,986	27,167	27,001	26,734	25,629	24,759
New Hampshire	204,713	1,586	8,831	17,388	16,520	17,152	16,959	16,886
New Jersey	1,268,996	10,560	90,689	101,808	100,091	100,289	97,881	93,982
New Mexico	328,753	2,932	23,759	26,101	25,935	25,677	25,701	25,446
New York	2,877,143	38,196	202,894	225,811	222,656	224,581	214,629	208,589
North Carolina	1,254,821	7,610	102,603	107,679	105,581	104,907	102,456	99,282
North Dakota	[4]114,597	668	7,917	8,246	8,117	8,183	8,412	8,525
Ohio	1,842,559	22,402	134,949	146,136	142,960	143,112	140,514	138,269
Oklahoma	628,492	16,787	44,664	53,868	47,543	47,327	46,750	46,236
Oregon	542,809	547	37,530	41,912	42,764	43,005	42,784	41,966
Pennsylvania	1,816,414	2,712	126,155	141,973	140,305	141,360	139,387	138,971
Rhode Island	154,785	811	10,907	12,846	12,466	12,746	12,323	12,003
South Carolina	[1]664,592	[1]9,180	47,160	54,402	53,492	49,338	53,929	52,675
South Dakota	[4]132,495	654	9,495	9,714	9,539	9,778	9,931	9,815
Tennessee	[1]905,442	[1]12,506	71,870	75,855	73,828	73,085	71,249	68,746
Texas	3,945,367	136,945	290,432	318,863	309,313	307,892	301,475	299,362
Utah	481,176	4,115	34,529	36,336	35,901	35,988	35,008	35,304
Vermont	105,120	2,377	6,976	7,584	7,739	7,932	8,165	7,970
Virginia	1,124,022	5,161	84,154	89,967	89,326	89,857	87,278	83,074
Washington	[4]998,053	5,901	71,323	77,761	77,571	78,617	77,372	75,902
West Virginia	297,530	5,822	21,821	22,560	22,355	22,119	21,732	21,402
Wisconsin	879,542	20,131	59,611	62,652	63,506	64,307	64,255	63,971
Wyoming	[4]95,241	0	6,383	6,637	6,820	6,970	6,873	7,155

See footnotes on third page of this table.

Table 1.—Public school student membership, by grade and state: Fall 1998—Continued

State	Total student membership	Pre-kindergarten	Kinder-garten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs								
Bureau of Indian Affairs	50,125	0	4,843	4,771	4,498	4,353	4,332	3,996
DOD Dependents Schools	78,170	975	7,584	8,336	7,725	7,710	7,229	6,645
American Samoa	15,372	1,452	1,208	1,267	1,185	1,197	1,170	1,096
Guam	32,222	551	2,181	2,950	2,783	2,844	2,683	2,661
Northern Marianas	9,498	526	624	913	826	839	791	783
Puerto Rico	613,862	1,037	44,106	51,599	48,247	50,419	51,337	49,561
Virgin Islands	20,976	[3]0	1,426	1,746	1,793	1,687	1,651	1,613

State	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Ungraded
United States	3,496,637	3,529,583	3,480,233	3,856,100	3,381,772	3,018,065	2,723,707	661,442
Alabama	57,689	58,681	57,105	62,724	52,731	46,218	43,957	0
Alaska	10,399	10,932	10,497	11,442	9,749	8,800	8,403	0
Arizona	64,938	66,648	63,943	67,476	60,333	51,245	45,813	9,204
Arkansas	34,183	35,570	35,936	36,378	35,264	31,742	29,123	1,722
California	433,720	431,003	424,768	468,162	433,528	390,742	334,852	91,294
Colorado	54,053	54,589	53,556	58,265	51,622	47,173	40,076	1,247
Connecticut	42,167	41,837	40,254	43,140	37,682	34,058	30,437	0
Delaware	8,693	9,322	8,964	10,453	8,861	7,223	6,770	0
District of Columbia	4,175	4,557	4,083	4,387	3,786	3,187	2,572	3,683
Florida	183,929	183,976	179,066	214,459	171,405	135,021	112,724	0
Georgia	108,517	106,857	104,863	123,055	95,755	81,968	71,127	0
Hawaii	14,292	13,610	13,339	16,125	13,981	12,848	10,384	100
Idaho	18,396	18,458	19,073	20,562	19,680	18,621	17,255	0
Illinois	151,150	148,980	148,529	161,476	140,486	129,037	127,506	3,793
Indiana	73,768	74,982	74,679	82,509	73,224	69,079	64,215	4,822
Iowa	35,429	37,529	38,374	40,741	39,652	38,275	37,166	11,354
Kansas	35,873	36,876	37,189	39,290	37,153	33,696	31,955	9,761
Kentucky	48,061	48,617	49,580	55,999	49,274	43,729	39,369	[2]9,292
Louisiana	58,353	60,940	56,683	64,064	53,319	46,531	41,479	17,226
Maine	16,669	17,448	17,392	16,635	15,335	13,951	13,026	2,744
Maryland	64,561	63,379	62,174	68,672	59,651	53,890	49,321	7,165
Massachusetts	74,131	73,148	72,101	74,668	66,456	61,200	55,369	4,557
Michigan	123,596	124,352	123,565	132,899	115,887	105,720	94,361	92,572
Minnesota	63,862	67,430	67,868	69,761	68,342	66,054	65,409	0
Mississippi	37,139	39,422	37,322	40,169	34,875	29,319	26,452	15,420
Missouri	68,613	70,246	69,973	73,983	68,853	60,678	55,794	9,636
Montana	12,444	12,984	12,994	13,655	12,816	12,266	11,611	368
Nebraska	21,603	22,367	22,725	24,901	22,865	22,103	21,517	0
Nevada	24,196	23,816	23,168	23,183	21,652	20,108	16,824	698
New Hampshire	17,139	16,765	16,848	16,566	15,149	14,061	12,148	715
New Jersey	90,971	88,587	86,032	86,450	78,892	73,985	68,618	100,161
New Mexico	25,458	25,760	25,716	29,414	26,245	21,885	18,724	0
New York	204,177	204,605	200,097	247,917	212,054	166,183	148,315	156,439
North Carolina	98,276	96,840	95,522	108,749	86,952	74,806	63,476	82
North Dakota	8,474	9,023	9,295	9,608	9,577	9,512	9,040	0
Ohio	139,314	142,886	141,802	152,908	137,607	129,872	120,734	9,094
Oklahoma	46,702	47,840	47,933	50,328	47,393	43,152	38,769	3,200
Oregon	41,828	42,598	42,825	45,260	42,838	39,095	35,079	2,778
Pennsylvania	138,900	142,621	138,766	149,158	139,026	128,366	118,850	29,864
Rhode Island	11,831	11,777	11,372	12,504	10,864	10,018	8,727	3,590

See footnotes on third page of this table.

Table 1.—Public school student membership, by grade and state: Fall 1998—Continued

State	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Ungraded
South Carolina	52,690	53,284	51,700	63,683	46,768	39,654	36,637	0
South Dakota	10,250	10,718	10,841	11,302	10,515	10,208	9,521	214
Tennessee	67,336	68,684	66,468	72,169	63,426	55,837	49,440	14,943
Texas	300,246	303,921	299,760	350,743	273,161	240,751	212,503	0
Utah	34,356	35,151	35,559	36,598	37,415	38,138	35,706	11,072
Vermont	8,124	8,190	8,200	9,016	8,189	7,494	6,823	341
Virginia	84,594	84,975	85,348	90,241	79,387	71,212	67,787	31,661
Washington	76,162	78,001	77,340	85,131	79,208	71,982	65,782	0
West Virginia	22,082	22,997	22,623	24,061	23,446	22,562	21,344	604
Wisconsin	65,788	68,001	68,481	76,660	71,273	67,146	63,760	0
Wyoming	7,340	7,803	7,942	8,401	8,170	7,664	7,057	26
Outlying Areas, DOD Dependent Schools, and Bureau of Indian Affairs								
Bureau of Indian Affairs	3,966	3,860	3,759	4,132	3,222	2,348	2,045	0
DOD Dependents Schools	6,169	5,665	5,171	4,731	4,021	3,388	2,821	0
American Samoa	1,147	1,080	1,004	1,034	932	814	741	45
Guam	2,467	2,468	2,270	3,002	2,278	1,656	1,428	0
Northern Marianas	815	653	650	761	567	398	352	0
Puerto Rico	47,714	51,079	46,399	43,666	43,110	38,320	32,289	14,979
Virgin Islands	1,603	2,062	1,520	2,178	1,322	1,204	999	172

[1] Prekindergarten data imputed based on current-year (fall 1998) data; total membership includes imputed data.

[2] Grades 1 through 3 and ungraded disaggregated from reported total based on distribution in other states.

[3] The Virgin Islands do not have a prekindergarten program.

[4] Bureau of Indian Affairs data subtracted from state totals.

NOTE: U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 2.—Public school student/teacher ratio, student membership, and teachers, by level of instruction and state: Fall 1998

State	Total student/ teacher ratio	Total student membership	Total teachers	Pre-kindergarten teachers	Kindergarten teachers	Elementary teachers	Secondary teachers	Teachers of ungraded classes
United States	16.5	[1]46,534,687	[1]2,826,146	[1]30,193	138,236	1,399,451	1,012,946	245,320
Alabama	15.7	[1]747,970	[1]47,753	[1]560	3,455	22,715	21,023	0
Alaska	16.7	135,373	8,118	36	352	4,799	2,931	0
Arizona	20.0	848,262	42,352	186	1,682	28,861	11,623	0
Arkansas	16.2	452,256	27,953	186	1,961	10,272	12,668	2,866
California	21.0	[1]5,925,964	[1]281,686	[1]4,440	21,399	162,118	65,483	28,246
Colorado	17.7	699,135	39,434	322	1,265	18,791	19,056	0
Connecticut	14.0	544,698	38,772	167	1,444	21,036	11,284	4,841
Delaware	16.0	113,262	7,074	26	213	3,313	3,522	0
District of Columbia	13.9	71,889	5,187	229	243	2,631	1,974	110
Florida	18.4	2,337,633	126,796	914	7,204	47,524	49,025	22,129
Georgia	15.8	1,401,291	88,658	1,794	5,467	45,114	36,283	0
Hawaii	17.7	188,069	10,639	[2]104	[2]445	[2]5,286	4,762	42
Idaho	18.2	244,722	13,426	117	507	6,300	6,499	3
Illinois	16.5	2,011,530	121,758	1,436	4,759	67,102	30,455	18,006
Indiana	17.0	988,094	58,084	375	2,332	27,105	25,639	2,633
Iowa	15.2	498,214	32,822	457	1,948	17,286	11,985	1,146
Kansas	14.8	472,353	32,003	215	1,147	13,381	13,862	3,398
Kentucky	16.1	655,687	40,803	653	1,254	20,415	11,878	6,603
Louisiana	15.6	768,734	49,124	469	2,736	30,996	14,406	517
Maine	13.2	[4]210,503	15,890	[2]193	[2]828	[2]9,826	5,043	0

See footnotes on second page of this table.

Table 2.—Public school student/teacher ratio, student membership, and teachers, by level of instruction and state: Fall 1998—Continued

State	Total student/ teacher ratio	Total student membership	Total teachers	Pre-kindergarten teachers	Kindergarten teachers	Elementary teachers	Secondary teachers	Teachers of ungraded classes
Maryland	16.9	841,671	49,840	315	732	24,144	24,649	0
Massachusetts	13.8	962,317	69,752	[2]451	[2]1,931	22,589	34,857	9,924
Michigan	18.5	[1]1,720,266	93,220	985	3,539	35,933	42,139	10,624
Minnesota	16.9	855,119	50,565	794	1,799	23,909	24,063	0
Mississippi	16.1	[4]502,379	31,140	214	1,651	13,836	10,165	5,274
Missouri	14.7	912,445	62,222	1,070	3,126	27,262	30,056	708
Montana	15.7	159,988	10,221	[2]123	[2]527	[2]6,261	3,310	0
Nebraska	14.3	291,140	20,310	[2]213	[2]910	[2]10,799	8,273	115
Nevada	18.9	311,061	16,415	253	515	7,767	6,010	1,870
New Hampshire	15.4	204,713	13,290	94	295	8,854	4,047	0
New Jersey	13.8	1,268,996	92,264	244	3,272	48,405	26,769	13,574
New Mexico	16.5	328,753	19,981	212	837	10,512	4,705	3,715
New York	14.6	2,877,143	197,253	2,273	10,981	87,492	67,610	28,897
North Carolina	15.8	1,254,821	79,531	713	5,229	42,134	28,479	2,976
North Dakota	14.4	[4]114,597	7,974	88	274	4,558	3,054	0
Ohio	16.2	1,842,559	113,986	1,318	4,606	70,015	37,778	269
Oklahoma	15.4	628,492	40,886	415	1,607	16,878	17,535	4,451
Oregon	20.0	542,809	27,152	44	1,004	13,601	8,209	4,294
Pennsylvania	16.4	1,816,414	111,065	[2]905	[2]3,873	[2]45,980	46,530	13,777
Rhode Island	13.9	154,785	11,124	15	298	4,611	4,617	1,583
South Carolina	15.2	[1]664,592	43,689	480	1,944	27,822	13,443	0
South Dakota	14.3	[4]132,495	9,273	36	301	5,107	2,994	835
Tennessee	15.3	[1]905,442	59,258	195	3,734	39,097	14,940	1,292
Texas	15.2	3,945,367	259,739	4,263	14,217	108,259	96,352	36,648
Utah	22.4	481,176	21,501	139	870	9,294	8,782	2,416
Vermont	12.8	105,120	8,221	56	271	2,792	3,160	1,942
Virginia	14.2	1,124,022	[1]79,393	[1]280	[2]3,647	[2]43,289	32,177	0
Washington	20.1	[4]998,053	49,671	67	2,008	22,827	20,325	4,444
West Virginia	14.2	297,530	20,989	185	1,116	8,942	7,072	3,674
Wisconsin	14.4	879,542	61,176	873	2,276	38,716	17,971	1,340
Wyoming	14.2	[4]95,241	6,713	1	205	2,895	3,474	138
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs								
Bureau of Indian Affairs	0.0	50,125	—	—	—	—	—	—
DOD Dependents Schools	15.1	78,170	5,171	61	178	2,098	1,847	987
American Samoa	20.1	15,372	764	112	32	369	236	15
Guam	30.6	32,222	1,052	14	70	429	523	16
Northern Marianas	19.1	9,498	496	1	18	285	182	10
Puerto Rico	15.4	613,862	39,849	112	1,224	19,761	15,296	3,388
Virgin Islands	13.4	20,976	1,567	[3]0	67	698	764	38

— Data missing or not applicable.

[1] Prekindergarten data imputed based on current-year (fall 1998) data; this affects total student membership.

[2] Data disaggregated from reported total.

[3] The Virgin Islands do not have a prekindergarten program.

[4] Bureau of Indian Affairs data subtracted from state totals.

NOTE: Teacher counts are full-time-equivalency (FTE) counts. Elementary and secondary teacher counts are not directly comparable across states due to differences in the grades included in these designations. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 3.—Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category and state: Fall 1998

State	Total staff	Teachers		Instructional aides		Instructional coordinators and supervisors		Guidance counselors	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	[1]5,416,699	[1]2,826,146	52.2	[1]587,158	10.8	[1]36,864	0.7	[1]93,058	1.7
Alabama	[1]87,641	[1]47,753	54.5	6,752	7.7	572	0.7	1,785	2.0
Alaska	[1]15,684	8,118	51.8	2,162	13.8	[1]128	0.8	235	1.5
Arizona	[1]85,009	42,352	49.8	[1]11,560	13.6	184	0.2	1,093	1.3
Arkansas	[1]40,775	27,953	68.6	3,231	7.9	221	0.5	1,179	2.9
California	[1]514,422	[1]281,686	54.8	59,113	11.5	5,860	1.1	5,760	1.1
Colorado	76,125	39,434	51.8	8,051	10.6	619	0.8	1,121	1.5
Connecticut	77,410	38,772	50.1	9,950	12.9	408	0.5	1,175	1.5
Delaware	12,869	7,074	55.0	1,014	7.9	51	0.4	227	1.8
District of Columbia	9,840	5,187	52.7	384	3.9	125	1.3	242	2.5
Florida	262,170	126,796	48.4	28,882	11.0	823	0.3	5,208	2.0
Georgia	177,832	88,658	49.9	22,809	12.8	1,096	0.6	2,763	1.6
Hawaii	17,354	10,639	61.3	1,042	6.0	402	2.3	576	3.3
Idaho	23,833	13,426	56.3	2,375	10.0	246	1.0	585	2.5
Illinois	[1]234,721	121,758	51.9	[1]27,413	11.7	2,147	0.9	2,881	1.2
Indiana	124,097	58,084	46.8	17,785	14.3	1,443	1.2	1,788	1.4
Iowa	65,967	32,822	49.8	7,725	11.7	367	0.6	1,300	2.0
Kansas	60,829	32,003	52.6	5,955	9.8	106	0.2	1,117	1.8
Kentucky	91,088	40,803	44.8	13,909	15.3	395	0.4	1,293	1.4
Louisiana	99,401	49,124	49.4	10,379	10.4	1,118	1.1	2,983	3.0
Maine	[3]31,298	15,890	50.8	4,686	15.0	155	0.5	601	1.9
Maryland	93,313	49,840	53.4	7,712	8.3	731	0.8	1,957	2.1
Massachusetts	126,843	69,752	55.0	16,457	13.0	1,240	1.0	2,302	1.8
Michigan	209,413	93,220	44.5	21,878	10.4	836	0.4	3,054	1.5
Minnesota	96,009	50,565	52.7	12,595	13.1	1,331	1.4	963	1.0
Mississippi	[3]65,023	31,140	47.9	9,037	13.9	574	0.9	953	1.5
Missouri	115,847	62,222	53.7	9,191	7.9	793	0.7	2,516	2.2
Montana	[1]19,024	10,221	53.7	[1]2,180	11.5	135	0.7	428	2.2
Nebraska	38,207	20,310	53.2	3,954	10.3	251	0.7	745	1.9
Nevada	29,132	16,415	56.3	2,148	7.4	113	0.4	637	2.2
New Hampshire	25,574	13,290	52.0	4,336	17.0	[2]160	0.6	689	2.7
New Jersey	171,196	92,264	53.9	16,542	9.7	1,324	0.8	3,295	1.9
New Mexico	41,125	19,981	48.6	4,781	11.6	664	1.6	706	1.7
New York	376,189	197,253	52.4	34,221	9.1	1,481	0.4	5,648	1.5
North Carolina	152,899	79,531	52.0	25,785	16.9	680	0.4	3,155	2.1
North Dakota	[3]14,765	7,974	54.0	1,678	11.4	87	0.6	254	1.7
Ohio	209,689	113,986	54.4	12,897	6.2	400	0.2	3,381	1.6
Oklahoma	70,762	40,886	57.8	5,639	8.0	140	0.2	1,460	2.1
Oregon	53,781	27,152	50.5	7,337	13.6	304	0.6	1,218	2.3
Pennsylvania	209,862	111,065	52.9	18,685	8.9	1,522	0.7	3,830	1.8
Rhode Island	17,832	11,124	62.4	1,994	11.2	66	0.4	317	1.8
South Carolina	[1]81,370	43,689	53.7	[1]9,057	11.1	443	0.5	1,581	1.9
South Dakota	[3]16,525	9,273	56.1	1,893	11.5	121	0.7	341	2.1
Tennessee	110,069	59,258	53.8	11,742	10.7	[2]962	0.9	1,689	1.5
Texas	506,134	259,739	51.3	51,844	10.2	1,103	0.2	8,771	1.7
Utah	39,198	21,501	54.9	4,995	12.7	547	1.4	726	1.9
Vermont	16,817	8,221	48.9	3,593	21.4	267	1.6	365	2.2
Virginia	[1]146,267	[1]79,393	54.3	13,937	9.5	1,380	0.9	3,300	2.3
Washington	[3]93,750	49,671	53.0	9,661	10.3	[2]734	0.8	1,851	2.0
West Virginia	38,655	20,989	54.3	3,079	8.0	348	0.9	640	1.7
Wisconsin	109,266	61,176	56.0	11,590	10.6	1,509	1.4	2,005	1.8
Wyoming	[3]13,798	6,713	48.7	1,543	11.2	152	1.1	369	2.7

See footnotes on third page of this table.

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Table 3.—Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category and state: Fall 1998—Continued

State	Total staff	Teachers		Instructional aides		Instructional coordinators and supervisors		Guidance counselors	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs									
Bureau of Indian Affairs	—	—	—	—	—	—	—	—	—
DOD Dependents Schools	7,782	5,171	66.4	772	9.9	120	1.5	172	2.2
American Samoa	1,524	764	50.1	115	7.5	48	3.1	34	2.2
Guam	3,073	1,052	34.2	685	22.3	83	2.7	45	1.5
Northern Marianas	1,041	496	47.6	159	15.3	10	1.0	20	1.9
Puerto Rico	69,067	39,849	57.7	165	0.2	422	0.6	879	1.3
Virgin Islands	3,055	1,567	51.3	327	10.7	19	0.6	82	2.7

State	Librarians		Other student support staff		School administrators		School district administrators		Administrative support staff	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	[1]52,216	1.0	[1]1,280,807	23.6	[1]129,278	2.4	[1]50,813	0.9	[1]360,359	6.7
Alabama	1,278	1.5	22,422	25.6	2,788	3.2	681	0.8	3,610	4.1
Alaska	149	1.0	[2]2,735	17.4	836	5.3	[2]106	0.7	1,215	7.7
Arizona	780	0.9	[1]19,881	23.4	1,899	2.2	408	0.5	6,852	8.1
Arkansas	930	2.3	[1]4,532	11.1	1,492	3.7	596	1.5	641	1.6
California	1,297	0.3	[2]95,960	18.7	11,760	2.3	2,271	0.4	50,715	9.9
Colorado	702	0.9	17,936	23.6	1,859	2.4	856	1.1	5,547	7.3
Connecticut	719	0.9	18,906	24.4	1,894	2.4	1,105	1.4	4,481	5.8
Delaware	120	0.9	2,996	23.3	415	3.2	87	0.7	885	6.9
District of Columbia	135	1.4	2,865	29.1	271	2.8	45	0.5	586	6.0
Florida	2,635	1.0	64,719	24.7	5,988	2.3	1,598	0.6	25,521	9.7
Georgia	1,991	1.1	45,805	25.8	4,284	2.4	1,686	0.9	8,740	4.9
Hawaii	290	1.7	2,875	16.6	493	2.8	132	0.8	905	5.2
Idaho	194	0.8	4,923	20.7	710	3.0	117	0.5	1,257	5.3
Illinois	1,914	0.8	[1]54,628	23.3	5,487	2.3	3,643	1.6	[1]14,850	6.3
Indiana	1,075	0.9	32,774	26.4	2,880	2.3	914	0.7	7,354	5.9
Iowa	733	1.1	16,423	24.9	1,684	2.6	814	1.2	4,099	6.2
Kansas	971	1.6	14,919	24.5	1,712	2.8	1,017	1.7	3,029	5.0
Kentucky	1,098	1.2	26,308	28.9	1,829	2.0	1,046	1.1	4,407	4.8
Louisiana	1,211	1.2	28,199	28.4	2,547	2.6	288	0.3	3,552	3.6
Maine	245	0.8	[2]6,678	21.3	891	2.8	471	1.5	[2]1,681	5.4
Maryland	1,083	1.2	22,563	24.2	3,395	3.6	701	0.8	5,331	5.7
Massachusetts	644	0.5	23,500	18.5	2,195	1.7	1,073	0.8	9,680	7.6
Michigan	1,566	0.7	71,062	33.9	5,603	2.7	2,181	1.0	10,013	4.8
Minnesota	410	0.4	20,305	21.1	1,764	1.8	383	0.4	7,693	8.0
Mississippi	984	1.5	16,104	24.8	1,653	2.5	971	1.5	3,607	5.5
Missouri	1,497	1.3	[2]24,240	20.9	2,819	2.4	1,140	1.0	[2]11,429	9.9
Montana	356	1.9	[1]3,830	20.1	537	2.8	155	0.8	[1]1,182	6.2
Nebraska	550	1.4	8,954	23.4	946	2.5	546	1.4	1,951	5.1
Nevada	274	0.9	6,693	23.0	847	2.9	211	0.7	1,794	6.2
New Hampshire	269	1.1	[2]4,849	19.0	512	2.0	391	1.5	[2]1,078	4.2
New Jersey	1,797	1.0	35,021	20.5	4,309	2.5	1,686	1.0	14,958	8.7
New Mexico	266	0.6	9,814	23.9	916	2.2	792	1.9	3,205	7.8
New York	3,027	0.8	94,910	25.2	7,047	1.9	2,484	0.7	30,118	8.0
North Carolina	2,247	1.5	35,597	23.3	4,307	2.8	1,495	1.0	102	0.1
North Dakota	191	1.3	3,230	21.9	409	2.8	451	3.1	491	3.3
Ohio	1,688	0.8	48,723	23.2	977	0.5	5,453	2.6	22,184	10.6
Oklahoma	929	1.3	14,396	20.3	1,979	2.8	728	1.0	4,605	6.5
Oregon	588	1.1	10,498	19.5	1,618	3.0	810	1.5	4,256	7.9
Pennsylvania	2,198	1.0	51,187	24.4	4,054	1.9	1,431	0.7	15,890	7.6
Rhode Island	64	0.4	2,493	14.0	395	2.2	167	0.9	1,212	6.8

See footnotes on third page of this table.

Table 3.—Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category and state: Fall 1998—Continued

State	Librarians		Other student support staff		School administrators		School district administrators		Administrative support staff	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
South Carolina	1,123	1.4	[1]18,025	22.2	2,300	2.8	245	0.3	[1]4,907	6.0
South Dakota	177	1.1	3,074	18.6	419	2.5	361	2.2	866	5.2
Tennessee	1,457	1.3	[2]21,920	19.9	4,388	4.0	1,840	1.7	[2]6,813	6.2
Texas	4,508	0.9	144,210	28.5	12,564	2.5	2,738	0.5	20,657	4.1
Utah	300	0.8	7,670	19.6	995	2.5	105	0.3	2,359	6.0
Vermont	213	1.3	2,908	17.3	408	2.4	147	0.9	695	4.1
Virginia	2,097	1.4	33,977	23.2	3,686	2.5	1,733	1.2	6,764	4.6
Washington	1,286	1.4	[2]20,509	21.9	2,627	2.8	1,094	1.2	6,317	6.7
West Virginia	358	0.9	9,648	25.0	1,062	2.7	330	0.9	2,201	5.7
Wisconsin	1,459	1.3	21,001	19.2	2,486	2.3	896	0.8	7,144	6.5
Wyoming	143	1.0	3,412	24.7	342	2.5	194	1.4	930	6.7
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs										
Bureau of Indian Affairs	—	—	—	—	—	—	—	—	—	—
DOD Dependents Schools	165	2.1	249	3.2	291	3.7	77	1.0	765	9.8
American Samoa	6	0.4	342	22.4	67	4.4	35	2.3	113	7.4
Guam	23	0.7	263	8.6	52	1.7	24	0.8	846	27.5
Northern Marianas	2	0.2	174	16.7	32	3.1	15	1.4	133	12.8
Puerto Rico	928	1.3	20,161	29.2	1,288	1.9	1,329	1.9	4,046	5.9
Virgin Islands	37	1.2	619	20.3	88	2.9	71	2.3	245	8.0

— Data missing or not applicable.

[1] Data imputed based on current-year (fall 1998) data.

[2] Data disaggregated from reported total.

[3] Bureau of Indian Affairs data subtracted from state totals.

NOTE: All staff counts are full-time-equivalency counts. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 4.—Number of public school graduates, 12th-grade student membership, and 9th-grade student membership 3 years earlier, by state: School year 1997–98

State	Regular high school graduates 1997–98	12th-grade membership 1997–98	9th-grade membership 1994–95	High school equivalency recipients 1997–98[1]	Other high school completers 1997–98[1]
United States	2,457,658	2,672,932	3,604,115	141,361	38,342
Alabama	38,089	44,272	63,656	3,863	3,712
Alaska	6,462	7,771	9,947	962	34
Arizona	36,361	44,259	59,150	—	173
Arkansas	26,855	29,204	36,689	8,277	2,104
California	282,897	317,595	420,643	12,586	5,302
Colorado	35,794	39,263	50,078	—	562
Connecticut	27,885	29,660	38,001	1,037	—
Delaware	6,439	6,741	9,469	282	71
District of Columbia	2,777	2,961	4,923	560	128
Florida	98,498	108,366	172,947	13,825	2,734
Georgia	58,525	69,355	114,176	15,577	5,863
Hawaii	9,670	10,266	15,597	—	699
Idaho	15,523	17,020	19,777	—	64
Illinois	114,611	129,084	148,944	—	—
Indiana	58,899	64,829	83,147	1,635	488

See footnotes on second page of this table.

Table 4.—Number of public school graduates, 12th-grade student membership, and 9th-grade student membership 3 years earlier, by state: School year 1997–98—Continued

State	Regular high school graduates 1997–98	12th-grade membership 1997–98	9th-grade membership 1994–95	High school equivalency recipients 1997–98[1]	Other high school completers 1997–98[3]
Iowa	36,008	36,808	40,593	2,789	86
Kansas	27,856	30,922	38,007	—	—
Kentucky	37,270	40,153	55,758	—	—
Louisiana	38,030	41,527	68,599	3,465	1,044
Maine[2]	12,171	12,820	15,503	327	24
Maryland	44,555	46,532	63,067	—	478
Massachusetts	50,452	54,354	66,707	—	—
Michigan	92,732	92,690	128,383	962	249
Minnesota[1]	54,494	63,727	65,149	—	—
Mississippi[2]	24,502	26,788	43,434	251	1,710
Missouri	52,031	55,673	72,584	5,096	—
Montana	10,656	11,301	13,309	1,193	—
Nebraska	19,719	20,912	23,281	—	83
Nevada	13,052	15,782	18,685	5,134	328
New Hampshire	10,843	11,656	14,564	1,703	—
New Jersey	65,106	68,008	83,256	—	—
New Mexico	16,529	18,080	28,547	—	203
New York	138,531	146,818	227,040	—	—
North Carolina	59,292	62,552	97,534	6,569	854
North Dakota[2]	8,170	8,815	9,564	1,727	—
Ohio	111,211	120,070	151,879	6,368	—
Oklahoma	35,213	37,568	48,838	7,986	—
Oregon	27,754	34,419	41,301	3,905	3,034
Pennsylvania	110,919	117,432	147,352	10,313	—
Rhode Island	8,074	8,633	11,534	645	1
South Carolina	31,951	36,576	60,058	2,364	2,074
South Dakota[2]	9,140	9,939	12,077	1,552	—
Tennessee	57,236	48,881	72,593	—	4,425
Texas	197,186	206,928	323,162	2,855	—
Utah	31,567	35,900	38,356	1,860	151
Vermont	6,469	6,831	7,993	—	—
Virginia	61,777	66,430	84,447	698	1,610
Washington[2]	53,679	64,731	75,684	4,879	—
West Virginia	20,164	21,765	26,766	1,550	7
Wisconsin	57,607	63,188	73,063	7,888	—
Wyoming[2]	6,427	7,077	8,304	678	47
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs					
Bureau of Indian Affairs	—	—	—	—	—
DOD Dependents Schools	2,595	2,728	—	—	0
American Samoa	665	704	885	16	11
Guam	923	1,309	2,795	—	—
Northern Marianas	374	500	625	—	0
Puerto Rico	29,881	32,432	45,789	9,927	—
Virgin Islands	1,069	1,193	1,935	—	—

— Data missing or not applicable.

[1] Includes recipients age 19 or younger, except in Minnesota where they are age 20 or younger.

[2] Bureau of Indian Affairs data were not subtracted from state totals.

[3] Other high school completers are individuals who received a certificate of attendance, or other certificate of completion, in lieu of a diploma during the previous school year and subsequent summer school.

NOTE: National totals (the 50 states and D.C.) for some items may be undercounts due to missing data in some states. Regular high school graduates may include students not included in the 12th grade and the former category of other diploma recipients.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1994–95, 1997–98, and 1998–99.

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Table 5.—Public school membership by race/ethnicity and state: School year 1998–99

State	American Indian/Alaska Native	Asian/Pacific Islander	Hispanic	Black, non-Hispanic	White, non-Hispanic
United States	532,526	1,828,467	6,938,813	7,922,953	29,142,074
Alabama	5,246	5,024	6,879	266,225	452,154
Alaska	33,597	6,839	4,103	6,211	84,623
Arizona	58,469	16,171	268,038	38,358	465,370
Arkansas	2,000	3,530	11,449	106,211	329,066
California	50,029	648,511	2,412,059	507,506	2,210,494
Colorado	8,054	18,876	139,451	39,402	493,352
Connecticut	1,502	14,063	67,318	74,215	387,600
Delaware	234	2,278	5,597	34,422	70,731
District of Columbia	31	1,126	5,956	61,717	3,059
Florida	6,037	42,970	401,254	595,238	1,292,134
Georgia	1,898	27,693	47,157	533,736	790,807
Hawaii	734	134,844	8,700	4,584	39,207
Idaho	3,050	2,953	23,835	1,651	213,134
Illinois	3,054	63,990	279,717	429,736	1,235,033
Indiana	1,936	8,733	27,904	112,197	837,324
Iowa	2,372	8,332	14,059	18,115	455,336
Kansas	5,500	9,722	35,356	40,519	378,020
Kentucky	631	2,775	4,102	65,519	556,981
Louisiana	5,188	9,831	9,819	362,031	381,865
Maine*	982	1,980	1,002	2,375	204,214
Maryland	2,840	34,065	33,580	307,906	463,280
Massachusetts	2,187	40,080	95,843	82,522	741,685
Michigan	17,684	28,550	51,859	334,654	1,279,203
Minnesota	17,152	39,993	22,607	49,914	725,434
Mississippi*	744	3,094	2,525	256,210	239,806
Missouri	2,561	9,883	12,903	155,464	731,623
Montana	16,349	1,353	2,528	819	138,939
Nebraska	4,359	4,114	17,186	18,474	247,007
Nevada	5,635	15,806	68,475	30,691	190,454
New Hampshire	497	2,390	2,947	2,018	196,861
New Jersey	2,319	74,138	181,618	229,507	781,414
New Mexico	35,359	3,181	160,398	7,659	122,156
New York	11,283	161,304	519,538	585,622	1,599,396
North Carolina	18,827	21,171	38,806	391,393	784,624
North Dakota*	8,324	830	1,354	1,103	102,986
Ohio	2,130	19,561	28,002	291,666	1,501,200
Oklahoma	100,734	8,558	30,795	67,123	421,282
Oregon	11,134	19,831	47,027	14,754	450,063
Pennsylvania	2,018	34,006	72,933	265,899	1,441,558
Rhode Island	728	5,089	18,972	11,780	118,216
South Carolina	1,384	5,574	7,476	271,327	359,889
South Dakota*	12,682	1,148	1,327	1,391	115,947
Tennessee	1,302	9,570	11,065	216,344	665,493
Texas	11,904	100,006	1,523,769	567,998	1,741,690
Utah	7,319	12,252	34,482	3,941	423,182

See footnotes on second page of this table.

Table 5.—Public school membership by race/ethnicity and state: School year 1998–99—Continued

State	American Indian/Alaska Native	Asian/Pacific Islander	Hispanic	Black, non-Hispanic	White, non-Hispanic
Vermont	539	1,094	449	976	102,062
Virginia	2,608	41,965	44,275	305,859	729,315
Washington*	26,123	70,450	90,827	50,662	759,991
West Virginia	289	972	1,446	12,416	282,407
Wisconsin	12,208	27,425	33,729	85,900	720,280
Wyoming*	2,760	773	6,317	993	84,127
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs					
Bureau of Indian Affairs	50,125	—	—	—	—
DOD Dependents Schools	571	6,875	5,220	13,027	36,194
American Samoa	—	15,372	—	—	—
Guam	22	31,285	70	140	705
Northern Marianas	—	9,420	—	—	78
Puerto Rico	—	—	613,862	—	—
Virgin Islands	17	80	2,925	17,766	188

— Data missing or not applicable.

*Bureau of Indian Affairs data subtracted from state totals.

NOTE: Race/ethnicity categories may not sum to total membership (the 50 states and D.C.) if data are reported at different times and/or race/ethnicity was not reported for some students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Table 6.—Public regular high school graduates by race/ethnicity and state: School year 1997–98

State	American Indian/Alaska Native	Asian/Pacific Islander	Hispanic	Black, non-Hispanic	White, non-Hispanic
United States	—	—	—	—	—
Alabama	492	341	155	11,590	25,511
Alaska	1,132	307	154	259	4,610
Arizona	—	—	—	—	—
Arkansas	92	270	333	5,962	20,198
California	2,513	42,711	87,742	21,165	128,405
Colorado	272	1,081	4,612	1,594	28,235
Connecticut	63	795	2,266	3,154	21,607
Delaware	13	153	219	1,659	4,395
District of Columbia	—	198	168	2,320	91
Florida	194	2,750	14,104	21,051	60,399
Georgia	77	1,380	870	18,515	37,683
Hawaii	26	7,205	470	145	1,824
Idaho	134	191	770	47	14,381
Illinois	225	4,816	10,302	17,390	81,878
Indiana	100	564	1,199	4,954	52,082
Iowa	84	508	531	696	34,189
Kansas	275	594	1,203	1,699	24,085
Kentucky	261	224	171	3,007	33,607
Louisiana	173	583	443	14,834	21,997
Maine*	43	104	72	100	11,852
Maryland	112	2,310	1,439	14,031	26,663
Massachusetts	75	2,088	3,306	3,824	41,159
Michigan	836	1,585	1,885	11,684	76,742
Minnesota	—	—	—	—	—
Mississippi*	28	141	51	11,585	12,697

See footnotes on second page of this table.

Table 6.—Public regular high school graduates by race/ethnicity and state: School year 1997–98—Continued

State	American Indian/Alaska Native	Asian/Pacific Islander	Hispanic	Black, non-Hispanic	White, non-Hispanic
Missouri	119	639	533	6,234	44,506
Montana	626	63	148	30	9,789
Nebraska	122	231	595	724	18,047
Nevada	216	740	1,643	1,056	9,397
New Hampshire	—	—	—	—	—
New Jersey	—	—	—	—	—
New Mexico	1,595	228	7,083	353	7,270
New York	—	—	—	—	—
North Carolina	699	1,074	804	15,873	40,842
North Dakota*	307	55	58	39	7,711
Ohio	116	1,343	1,375	10,952	97,425
Oklahoma	5,047	540	1,125	3,142	25,359
Oregon	390	1,085	1,289	491	24,499
Pennsylvania	86	2,327	2,617	10,801	95,088
Rhode Island	34	254	600	462	6,724
South Carolina	—	—	—	—	—
South Dakota*	387	65	58	55	8,575
Tennessee	—	—	—	—	—
Texas	604	6,263	60,362	25,165	104,792
Utah	280	689	1,073	128	29,246
Vermont	—	—	—	—	—
Virginia	121	2,738	1,649	13,989	43,280
Washington*	—	—	—	—	—
West Virginia	32	117	70	677	19,268
Wisconsin	529	1,190	1,284	2,531	52,073
Wyoming*	104	49	340	49	5,874
Outlying Areas, DOD Dependents Schools, and Bureau of Indian Affairs					
Bureau of Indian Affairs	—	—	—	—	—
DOD Dependents Schools	—	—	—	—	—
American Samoa	—	665	—	—	—
Guam	2	876	3	5	37
Northern Marianas	—	372	—	—	2
Puerto Rico	—	—	29,881	—	—
Virgin Islands	—	—	77	985	7

— Data missing or not applicable.

*Bureau of Indian Affairs data subtracted from state totals.

NOTE: Race/ethnicity categories may not sum to total (the 50 states and D.C.) regular high school graduates for 1997–98 if data are reported at different times and/or race/ethnicity was not reported for some students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99.

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98

Frank Johnson

This article was originally published as a Statistics in Brief report. The universe data are from the "National Public Education Financial Survey" (NPEFS), part of the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

About $326 billion of revenues were raised by local, state, and federal governments to fund public education for grades prekindergarten through 12 in school year 1997–98. Current expenditures (those excluding construction, equipment, and debt financing) came to $285 billion. Three out of every five current expenditure dollars were spent on teachers, textbooks, and other instructional services and supplies. An average of $6,189 was spent on each student—an increase of 4.5 percent from $5,923 in school year 1996–97 (in unadjusted dollars).

These and other financial data on public elementary and secondary education are collected and reported each year by the National Center for Education Statistics (NCES), U.S. Department of Education. The data are part of the "National Public Education Financial Survey" (NPEFS), one of the components of the Common Core of Data (CCD) collection of surveys.

Revenues for Public Elementary and Secondary Education

About $326 billion were collected for public elementary and secondary education for school year 1997–98 in the 50 states and the District of Columbia (table 1). Total revenues ranged from a high of around $38 billion in California, which serves about 1 out of every 8 students in the nation, to a low of about $682 million in North Dakota, which

Table 1.—Revenues for public elementary and secondary schools, by source and state: School year 1997–1998

(In thousands of dollars)

State	Revenues, by source				
	Total	Local	Intermediate	State	Federal
United States	*$325,976,011	*$144,975,957	$1,152,717	$157,645,372	$22,201,965
Alabama	4,146,629	1,147,696	19,865	2,589,826	389,242
Alaska	1,218,425	311,509	0	757,286	149,630
Arizona	4,731,675	1,979,025	173,164	2,096,739	482,748
Arkansas	2,600,655	816,755	2,885	1,500,334	280,682
California	38,142,613	12,058,425	0	22,963,395	3,120,793
Colorado	4,327,326	2,221,459	7,004	1,879,065	219,798
Connecticut	*5,160,728	*3,033,194	0	1,925,676	201,858
Delaware	913,616	256,165	0	588,211	69,240
District of Columbia	706,935	590,572	0	0	116,363
Florida	14,988,118	6,531,728	0	7,311,149	1,145,240
Georgia	9,041,434	3,799,419	0	4,625,560	616,455
Hawaii	1,282,702	30,975	0	1,141,002	110,725
Idaho	1,320,647	399,755	0	827,955	92,937
Illinois	14,194,654	9,203,852	0	4,033,015	957,788
Indiana	7,513,407	3,238,260	51,424	3,860,331	363,393
Iowa	3,346,481	1,445,885	7,430	1,715,706	177,460
Kansas	3,122,238	1,017,588	112,360	1,807,350	184,940
Kentucky	3,932,068	1,128,409	0	2,427,126	376,532
Louisiana	*4,494,429	*1,721,617	0	2,266,287	506,525
Maine	1,600,635	759,931	0	728,812	111,892
Maryland	6,454,696	3,602,765	0	2,514,141	337,791
Massachusetts	7,893,657	4,284,907	0	3,213,490	395,259
Michigan	14,329,715	3,910,371	9,571	9,459,203	950,569
Minnesota	6,529,420	2,580,380	210,495	3,418,033	320,513
Mississippi	2,407,954	733,954	1,116	1,333,568	339,316

See footnotes on second page of this table.

Table 1.—Revenues for public elementary and secondary schools, by source and state: School year 1997–1998—Continued
(In thousands of dollars)

State	Revenues, by source				
	Total	Local	Intermediate	State	Federal
Missouri	6,005,256	3,216,341	28,989	2,384,741	375,185
Montana	1,029,939	349,327	92,719	482,681	105,211
Nebraska	1,964,205	1,168,186	14,456	650,846	130,716
Nevada	1,910,794	1,215,367	0	607,846	87,580
New Hampshire	1,364,943	1,185,395	0	127,607	51,940
New Jersey	13,189,983	7,466,159	90	5,246,646	477,088
New Mexico	1,952,452	284,281	0	1,409,495	258,676
New York	27,782,468	15,110,873	120,595	11,038,714	1,512,286
North Carolina	7,188,615	1,829,557	0	4,838,150	520,907
North Dakota	682,419	310,637	7,204	280,238	84,339
Ohio	13,458,095	7,100,394	26,568	5,547,736	783,397
Oklahoma	3,416,296	953,925	63,828	2,103,243	295,299
Oregon	3,883,939	1,372,113	58,359	2,204,918	248,549
Pennsylvania	14,837,945	8,218,702	14,135	5,736,509	868,600
Rhode Island	1,264,156	688,098	0	507,377	68,680
South Carolina	4,055,072	1,623,594	0	2,087,806	343,673
South Dakota	794,256	422,764	9,452	282,518	79,522
Tennessee	4,815,833	2,090,573	0	2,299,491	425,768
Texas	24,179,060	11,593,016	65,392	10,675,578	1,845,074
Utah	2,305,397	738,941	0	1,406,577	159,879
Vermont	861,643	563,319	0	253,572	44,752
Virginia	*7,757,954	*4,919,794	0	2,432,370	405,791
Washington	6,895,693	1,904,387	1	4,548,851	442,455
West Virginia	2,216,984	622,308	773	1,389,076	204,827
Wisconsin	7,059,759	2,953,560	0	3,789,320	316,879
Wyoming	702,001	269,750	54,841	330,208	47,203
Outlying areas					
American Samoa	49,677	73	28	10,897	38,669
Guam	173,339	152,607	0	0	18,100
Northern Marianas	58,239	616	0	42,796	15,242
Puerto Rico	2,094,025	568	0	1,520,398	572,495
Virgin Islands	152,499	117,532	0	0	27,719

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

serves about 1 out of every 388 students in the nation. Nationally, revenues increased an average of 6.9 percent over last year's revenues of $305 billion (in unadjusted dollars).[*]

By far, the greatest part of education revenues came from nonfederal sources (state, intermediate, and local governments), which together provided about $304 billion, or 93.2 percent of all revenues. The federal government contribution to education revenues made up the remaining $22 billion. The relative contributions from these levels of government can be expressed as portions of the typical education dollar (figure 1). For school year 1997–98, local and intermediate sources made up 45 cents of every dollar in revenue; state revenues comprised 48 cents; and the remaining 7 cents came from federal sources.

Among states with more than one school district, revenues from local sources ranged from 14.6 percent (New Mexico) to 86.8 percent (New Hampshire) of total revenues (table 2). Hawaii and the District of Columbia have only one school district each and thus are not comparable to other states. Revenues from state sources also showed a wide distribution in their share of total revenues. The state revenue share of total revenues was less than 30 percent in three states: New Hampshire (9.3 percent), Illinois (28.4 percent), and Vermont (29.4 percent); and more than 70

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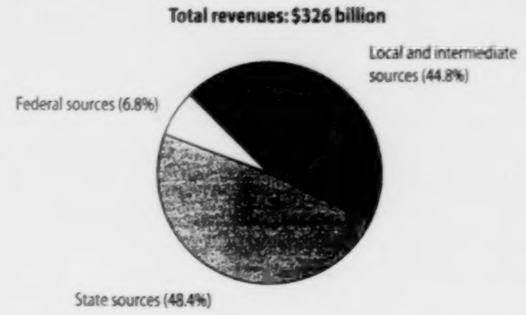
[*] Comparisons are based on the previous edition of this Statistics in Brief, which covers the 1996–97 school year: *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1996–1997* (Johnson 1999).

Figure 1.—The public education dollar: Revenues by source: School year 1997–98



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

Table 2.—Percentage distribution of revenues for public elementary and secondary schools, by source and state: School year 1997–98

		Within-state percentage distribution			
State	**Total**	**Local**	**Intermediate**	**State**	**Federal**
United States*	100.0	44.5	0.4	48.4	6.8
Alabama	100.0	27.7	0.5	62.5	9.4
Alaska	100.0	25.6	0.0	62.2	12.3
Arizona	100.0	41.8	3.7	44.3	10.2
Arkansas	100.0	31.4	0.1	57.7	10.8
California	100.0	31.6	0.0	60.2	8.2
Colorado	100.0	51.3	0.2	43.4	5.1
Connecticut*	100.0	58.8	0.0	37.3	3.9
Delaware	100.0	28.0	0.0	64.4	7.6
District of Columbia	100.0	83.5	0.0	0.0	16.5
Florida	100.0	43.6	0.0	48.8	7.6
Georgia	100.0	42.0	0.0	51.2	6.8
Hawaii	100.0	2.4	0.0	89.0	8.6
Idaho	100.0	30.3	0.0	62.7	7.0
Illinois	100.0	64.8	0.0	28.4	6.7
Indiana	100.0	43.1	0.7	51.4	4.8
Iowa	100.0	43.2	0.2	51.3	5.3
Kansas	100.0	32.6	3.6	57.9	5.9
Kentucky	100.0	28.7	0.0	61.7	9.6
Louisiana*	100.0	38.3	0.0	50.4	11.3
Maine	100.0	47.5	0.0	45.5	7.0
Maryland	100.0	55.8	0.0	39.0	5.2
Massachusetts	100.0	54.3	0.0	40.7	5.0
Michigan	100.0	27.3	0.1	66.0	6.6
Minnesota	100.0	39.5	3.2	52.3	4.9
Mississippi	100.0	30.5	0.0	55.4	14.1
Missouri	100.0	53.6	0.5	39.7	6.2
Montana	100.0	33.9	9.0	46.9	10.2
Nebraska	100.0	59.5	0.7	33.1	6.7
Nevada	100.0	63.6	0.0	31.8	4.6
New Hampshire	100.0	86.8	0.0	9.3	3.8
New Jersey	100.0	56.6	0.0	39.8	3.6
New Mexico	100.0	14.6	0.0	72.2	13.2
New York	100.0	54.4	0.4	39.7	5.4
North Carolina	100.0	25.5	0.0	67.3	7.2
North Dakota	100.0	45.5	1.1	41.1	12.4

See footnotes on second page of this table.

Table 2.—Percentage distribution of revenues for public elementary and secondary schools, by source and state: School year 1997–98—Continued

State	Total	Within-state percentage distribution			
		Local	Intermediate	State	Federal
Ohio	100.0	52.8	0.2	41.2	5.8
Oklahoma	100.0	27.9	1.9	61.6	8.6
Oregon	100.0	35.3	1.5	56.8	6.4
Pennsylvania	100.0	55.4	0.1	38.7	5.9
Rhode Island	100.0	54.4	0.0	40.1	5.4
South Carolina	100.0	40.0	0.0	51.5	8.5
South Dakota	100.0	53.2	1.2	35.6	10.0
Tennessee	100.0	43.4	0.0	47.7	8.8
Texas	100.0	47.9	0.3	44.2	7.6
Utah	100.0	32.1	0.0	61.0	6.9
Vermont	100.0	65.4	0.0	29.4	5.2
Virginia*	100.0	63.4	0.0	31.4	5.2
Washington	100.0	27.6	0.0	66.0	6.4
West Virginia	100.0	28.1	0.0	62.7	9.2
Wisconsin	100.0	41.8	0.0	53.7	4.5
Wyoming	100.0	38.4	7.8	47.0	6.7
Outlying areas					
American Samoa	100.0	0.2	0.1	21.9	77.8
Guam	100.0	89.6	0.0	0.0	10.4
Northern Marianas	100.0	0.3	0.0	73.5	26.2
Puerto Rico	100.0	0.1	0.0	72.6	27.3
Virgin Islands	100.0	81.8	0.0	0.0	18.2

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

percent in New Mexico (72.2 percent). State revenues in Hawaii made up 89.0 percent of total revenues. Federal revenues ranged from 3.6 percent in New Jersey to 14.1 percent in Mississippi. Federal revenues made up 16.5 percent of total revenues in the District of Columbia.

Current Expenditures for Public Elementary and Secondary Education

Current expenditures for public education in 1997–98 totaled about $285 billion (table 3). This represents a $15 billion (5.6 percent) increase over expenditures in the previous school year ($270 billion in unadjusted dollars). About $177 billion in current expenditures went for instruction. Another $96 billion were expended for a cluster of services that support instruction. Over $12 billion were spent on noninstructional services.

When expressed in terms of the typical education dollar, instructional expenditures accounted for 62 cents of the education dollar for current expenditures (figure 2). Instructional expenditures include teachers' salaries and benefits, supplies (e.g., textbooks), and purchased services. About 34 cents of the education dollar went for support services, which include operation and maintenance of buildings, school administration, transportation, and other student and school support activities (e.g., student counseling, libraries, and health services). Approximately 4 cents of every education dollar went to noninstructional activities, which include school meals and enterprise activities, such as bookstores.

Most states were closely clustered around the national average (61.8 percent) in terms of the share of current expenditures that were spent on instruction; all but five states and the District of Columbia spent more than 58 percent of their current expenditures on instruction (table 4). Three states spent more than two-thirds of their current expenditures on instruction. These states were New York (68.0 percent), Maine (67.3 percent), and Rhode Island (67.1 percent).

Current Expenditures per Student

In 1997–98, the 50 states and the District of Columbia spent an average of $6,189 in current expenditures for every

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Table 3.—Current expenditures for public elementary and secondary schools, by function and state: School year 1997–98

(In thousands of dollars)

State	Current expenditures, by function			
	Total	Instruction	Support services	Noninstruction
United States	[1]$285,489,511	[2]$176,522,907	[2]$96,473,458	[1]$12,493,146
Alabama	3,633,159	2,219,708	1,157,714	255,738
Alaska	1,092,750	[2]622,396	[2]433,239	37,115
Arizona	3,740,638	[2]2,163,076	[2]1,350,041	227,521
Arkansas	2,149,237	1,362,690	635,730	150,817
California	32,759,492	20,033,782	11,412,151	1,313,559
Colorado	3,886,872	2,247,424	1,498,236	141,212
Connecticut	[1]4,765,077	3,031,206	1,504,057	[1]229,814
Delaware	830,731	514,269	275,908	40,553
District of Columbia	647,202	[2]283,484	[2]339,974	23,744
Florida	12,737,325	7,500,075	4,606,310	630,939
Georgia	7,770,241	4,833,424	2,492,010	444,808
Hawai'i	1,112,351	712,023	328,520	71,809
Idaho	1,153,778	717,677	385,470	50,631
Illinois	12,473,064	7,568,726	4,472,681	431,657
Indiana	6,234,563	3,897,221	2,061,399	275,943
Iowa	3,005,421	1,842,537	1,017,529	145,355
Kansas	2,684,244	1,546,598	1,002,331	135,315
Kentucky	3,489,205	2,133,659	1,153,036	202,509
Louisiana	[1]4,030,379	2,415,114	1,279,565	[1]335,700
Maine	1,433,175	964,342	417,833	50,999
Maryland	5,843,685	3,661,049	1,901,323	281,314
Massachusetts	7,381,784	4,899,352	2,240,641	241,792
Michigan	12,003,818	7,044,614	4,604,271	354,933
Minnesota	5,452,571	3,423,447	1,804,163	224,961
Mississippi	2,164,592	1,327,436	682,395	154,761
Missouri	5,067,720	3,108,316	1,740,933	218,471
Montana	929,197	580,901	310,256	38,040
Nebraska	1,743,775	[2]1,096,437	517,114	[2]130,224
Nevada	1,570,576	944,837	575,767	49,972
New Hampshire	1,241,255	[2]810,161	[2]387,633	[2]43,461
New Jersey	12,056,560	7,293,294	4,398,670	364,597
New Mexico	1,659,891	949,678	629,290	80,923
New York	25,332,735	17,220,209	7,412,444	700,082
North Carolina	6,497,648	4,072,780	2,015,605	409,263
North Dakota	599,443	367,111	183,738	48,594
Ohio	11,448,722	6,752,805	4,267,606	428,311
Oklahoma	3,138,690	1,860,769	1,085,992	191,930
Oregon	3,474,714	2,072,977	1,281,385	120,352
Pennsylvania	13,084,859	8,338,422	4,261,130	485,307
Rhode Island	1,215,595	815,847	366,562	33,186
South Carolina	3,507,017	2,087,547	1,202,316	217,154
South Dakota	665,082	409,201	218,910	36,971
Tennessee	4,409,338	2,867,088	1,318,057	224,193
Texas	21,188,676	13,013,001	7,052,149	1,123,527
Utah	1,916,688	1,265,282	541,639	109,767
Vermont	749,786	486,174	240,947	22,665
Virginia	[1]6,739,003	4,108,526	2,275,431	[1]355,046
Washington	[2]5,986,648	[2]3,520,728	2,185,775	280,145
West Virginia	1,905,940	1,181,952	610,863	113,124
Wisconsin	6,280,696	3,966,885	2,120,618	193,193
Wyoming	603,901	366,647	216,104	21,150

See footnotes on second page of this table.

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Table 3.—Current expenditures for public elementary and secondary schools, by function and state: School year 1997–98—Continued

(In thousands of dollars)

State	Current expenditures, by function			
	Total	Instruction	Support services	Noninstruction
Outlying areas				
American Samoa	33,088	14,030	11,307	7,751
Guam	168,716	92,318	65,623	10,775
Northern Marianas	56,514	45,236	7,774	3,504
Puerto Rico	1,981,603	1,394,387	374,506	212,710
Virgin Islands	131,377	78,688	45,926	6,763

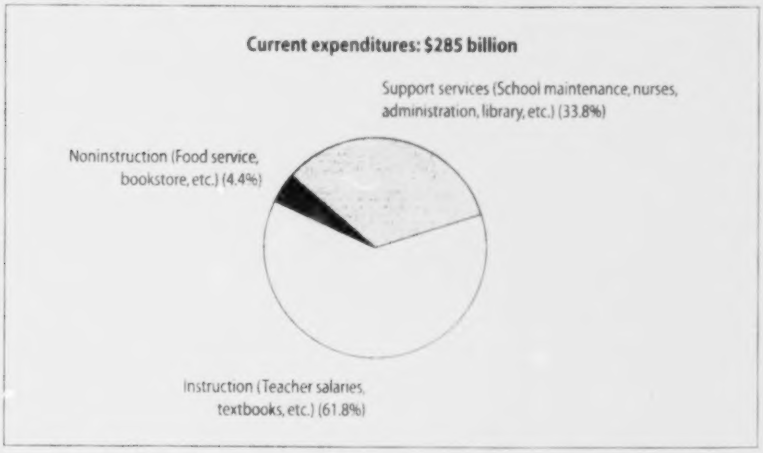
[1] Value contains imputation for missing data. Imputed value is less than 2 percent of total current expenditures in any one state.

[2] Value affected by redistribution of reported values for missing data items.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

Figure 2.—The public education dollar: Current expenditures by functions: School year 1997–98



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

Table 4.—Percentage distribution of current expenditures for public elementary and secondary schools, by function and state: School year 1997–98

State	Total	Within-state percentage distribution		
		Instruction	Support services	Noninstruction
United States*	100.0	61.8	33.8	4.4
Alabama	100.0	61.1	31.9	7.0
Alaska*	100.0	57.0	39.6	3.4
Arizona*	100.0	57.8	36.1	6.1
Arkansas	100.0	63.4	29.6	7.0
California	100.0	61.2	34.8	4.0
Colorado	100.0	57.8	38.5	3.6
Connecticut*	100.0	63.6	31.6	4.8
Delaware	100.0	61.9	33.2	4.9
District of Columbia*	100.0	43.8	52.5	3.7
Florida	100.0	58.9	36.2	5.0

See footnotes on second page of this table.

Table 4.—Percentage distribution of current expenditures for public elementary and secondary schools, by function and state: School year 1997-98—Continued

		Within-state percentage distribution		
State	**Total**	**Instruction**	**Support services**	**Noninstruction**
Georgia	100.0	62.2	32.1	5.7
Hawaii	100.0	64.0	29.5	6.5
Idaho	100.0	62.2	33.4	4.4
Illinois	100.0	60.7	35.9	3.5
Indiana	100.0	62.5	33.1	4.4
Iowa	100.0	61.3	33.9	4.8
Kansas	100.0	57.6	37.3	5.0
Kentucky	100.0	61.2	33.0	5.8
Louisiana*	100.0	59.9	31.7	8.3
Maine	100.0	67.3	29.2	3.6
Maryland	100.0	62.6	32.5	4.8
Massachusetts	100.0	66.4	30.4	3.3
Michigan	100.0	58.7	38.4	3.0
Minnesota	100.0	62.8	33.1	4.1
Mississippi	100.0	61.3	31.5	7.1
Missouri	100.0	61.3	34.4	4.3
Montana	100.0	62.5	33.4	4.1
Nebraska*	100.0	62.9	29.7	7.5
Nevada	100.0	60.2	36.7	3.2
New Hampshire*	100.0	65.3	31.2	3.5
New Jersey	100.0	60.5	36.5	3.0
New Mexico	100.0	57.2	37.9	4.9
New York	100.0	68.0	29.3	2.8
North Carolina	100.0	62.7	31.0	6.3
North Dakota	100.0	61.2	30.7	8.1
Ohio	100.0	59.0	37.3	3.7
Oklahoma	100.0	59.3	34.6	6.1
Oregon	100.0	59.7	36.9	3.5
Pennsylvania	100.0	63.7	32.6	3.7
Rhode Island	100.0	67.1	30.2	2.7
South Carolina	100.0	59.5	34.3	6.2
South Dakota	100.0	61.5	32.9	5.6
Tennessee	100.0	65.0	29.9	5.1
Texas	100.0	61.4	33.3	5.3
Utah	100.0	66.0	28.3	5.7
Vermont	100.0	64.8	32.1	3.0
Virginia*	100.0	61.0	33.8	5.3
Washington*	100.0	58.8	36.5	4.7
West Virginia	100.0	62.0	32.1	5.9
Wisconsin	100.0	63.2	33.8	3.1
Wyoming	100.0	60.7	35.8	3.5
Outlying areas				
American Samoa	100.0	42.4	34.2	23.4
Guam	100.0	54.7	38.9	6.4
Northern Marianas	100.0	80.0	13.8	6.2
Puerto Rico	100.0	69.9	19.4	10.7
Virgin Islands	100.0	59.9	34.9	5.2

*Distribution affected by imputations and redistribution of reported values to correct for missing items.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997-98.

pupil in membership (table 5). This represents a 4.5 percent increase in current expenditures per student from the previous school year ($5,923 in unadjusted dollars). Four states—New Jersey ($9,643), Connecticut ($8,904), New York ($8,852), and Alaska ($8,271)—expended more than $8,000 per pupil. The District of Columbia, which comprises a single urban district, spent $8,393 per pupil. Only one state, Utah, had expenditures of less than $4,000 for each pupil in membership ($3,969). The median per pupil expenditure was $5,958, indicating that one-half of all states educated students at a cost of less than $5,958 per student.

On the average, for every student in 1997–98, about $3,827 was spent for instructional services, $2,091 was expended for support services, and $271 was spent for noninstructional purposes.

Reference

Johnson, F. (1999). *Revenue and Expenditures for Public Elementary and Secondary Education: School Year 1996–1997* (NCES 1999–301). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Table 5.—Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function and state: School year 1997–98

State	Fall 1997 student membership	Current expenditures per pupil in membership			
		Total	Instruction	Support services	Noninstruction
United States	[1]46,126,897	[1]$6,189	[1]$3,827	[1]$2,091	[1]$271
Alabama	[1]749,207	[1]4,849	[1]2,963	[1]1,545	[1]341
Alaska	132,123	8,271	[2]4,711	3,279	281
Arizona	814,113	4,595	[2]2,657	1,658	279
Arkansas	456,497	4,708	2,985	1,393	330
California	[1]5,803,887	[1]5,644	[1]3,452	[1]1,966	[1]226
Colorado	687,167	5,656	3,271	2,180	205
Connecticut	535,164	[1]8,904	5,664	2,810	[1]429
Delaware	111,960	7,420	4,593	2,464	362
District of Columbia	77,111	8,393	[2]3,676	[2]4,409	308
Florida	2,294,077	5,552	3,269	2,008	275
Georgia	1,375,980	5,647	3,513	1,811	323
Hawaii	189,887	5,858	3,750	1,730	378
Idaho	244,403	4,721	2,936	1,577	207
Illinois	1,998,289	6,242	3,788	2,238	216
Indiana	986,836	6,318	3,949	2,089	280
Iowa	501,054	5,998	3,677	2,031	290
Kansas	468,687	5,727	3,300	2,139	289
Kentucky	669,322	5,213	3,188	1,723	303
Louisiana	776,813	[1]5,188	3,109	1,647	[1]432
Maine	212,579	6,742	4,536	1,966	240
Maryland	830,744	7,034	4,407	2,289	339
Massachusetts	949,006	7,778	5,163	2,361	255
Michigan	1,702,717	7,050	4,137	2,704	208
Minnesota	853,621	6,388	4,011	2,114	264
Mississippi	504,792	4,288	2,630	1,352	307
Missouri	910,613	5,565	3,413	1,912	240
Montana	162,335	5,724	3,578	1,911	234
Nebraska	292,681	5,958	[2]3,746	1,767	[2]445
Nevada	296,621	5,295	3,185	1,941	168
New Hampshire	201,629	6,156	[2]4,018	[2]1,923	[2]216
New Jersey	1,250,276	9,643	5,833	3,518	292
New Mexico	331,673	5,005	2,863	1,897	244
New York	2,861,823	8,852	6,017	2,590	245
North Carolina	1,236,083	5,257	3,295	1,631	331
North Dakota	118,572	5,056	3,096	1,550	410

See footnotes on second page of this table.

Table 5.—Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function and state: School year 1997–98—Continued

State	Fall 1997 student membership	Current expenditures per pupil in membership			
		Total	Instruction	Support services	Noninstruction
Ohio	1,847,114	6,198	3,656	2,310	232
Oklahoma	623,681	5,033	2,984	1,741	308
Oregon	541,346	6,419	3,829	2,367	222
Pennsylvania	1,815,151	7,209	4,594	2,348	267
Rhode Island	153,321	7,928	5,321	2,391	216
South Carolina	[1]659,273	[1]5,320	[1]3,166	[1]1,824	[1]329
South Dakota	142,443	4,669	2,873	1,537	260
Tennessee	[1]893,044	[1]4,937	[1]3,210	[1]1,476	[1]251
Texas	3,891,877	5,444	3,344	1,812	289
Utah	482,957	3,969	2,620	1,122	227
Vermont	105,984	7,075	4,587	2,273	214
Virginia	1,110,815	[1]6,067	3,699	2,048	[1]320
Washington	991,235	[2]6,040	[2]3,552	2,205	283
West Virginia	301,419	6,323	3,921	2,027	375
Wisconsin	881,780	7,123	4,499	2,405	219
Wyoming	97,115	6,218	3,775	2,225	218
Outlying areas					
American Samoa	15,214	2,175	922	743	509
Guam	32,444	5,200	2,845	2,023	332
Northern Marianas	9,246	6,112	4,892	841	379
Puerto Rico	617,157	3,211	2,244	622	345
Virgin Islands	22,136	5,932	3,555	2,072	306

[1] Value contains imputation for missing expenditure data.

[2] Value affected by redistribution of reported expenditure values for missing data items.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1997–98.

Data source: The NCES Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97 and 1997–98.

For technical information, see the complete report:

Johnson, F. (2000). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98* (NCES 2000–348).

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To obtain the complete report (NCES 2000–348), visit the NCES Web Site *(http://nces.ed.gov)* or contact Lena McDowell *(lena_mcdowell@ed.gov)*.

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Directory of Public Elementary and Secondary Education Agencies: 1997–98

Lena McDowell and John Sietsema

This article describes the directory of the same name. The universe data are primarily from the "Local Education Agency Universe Survey," a component of the NCES Common Core of Data (CCD).

This directory provides a complete listing of agencies responsible for providing free public elementary/secondary instruction or education support services in the 50 states, District of Columbia, five outlying areas, and Department of Defense Dependents Schools (overseas). The agencies are organized by state or jurisdiction and, within each state or jurisdiction, by agency type. Agencies are divided into six types: regular school districts, supervisory union administrative centers, regional educational service agencies (RESAs), state-operated agencies, federally operated agencies, and other agencies.

For each agency, the directory provides one line of information, as reported for the school day closest to October 1, 1997. The following information is provided for each agency: agency name, address, and phone number; name of county; metropolitan status code; grade span; student membership (number of students enrolled); number of regular high school graduates (1996–97 school year); number of students with Individualized Education Programs (IEPs); number of teachers; and number of schools (figure A). Preceding the information on individual agencies are several tables that provide summary information, such as the numbers and percentages of agencies by type, size, and state.

Data source: The NCES Common Core of Data (CCD), "Local Education Agency Universe Survey," 1997–98.

For technical information, see the complete directory:

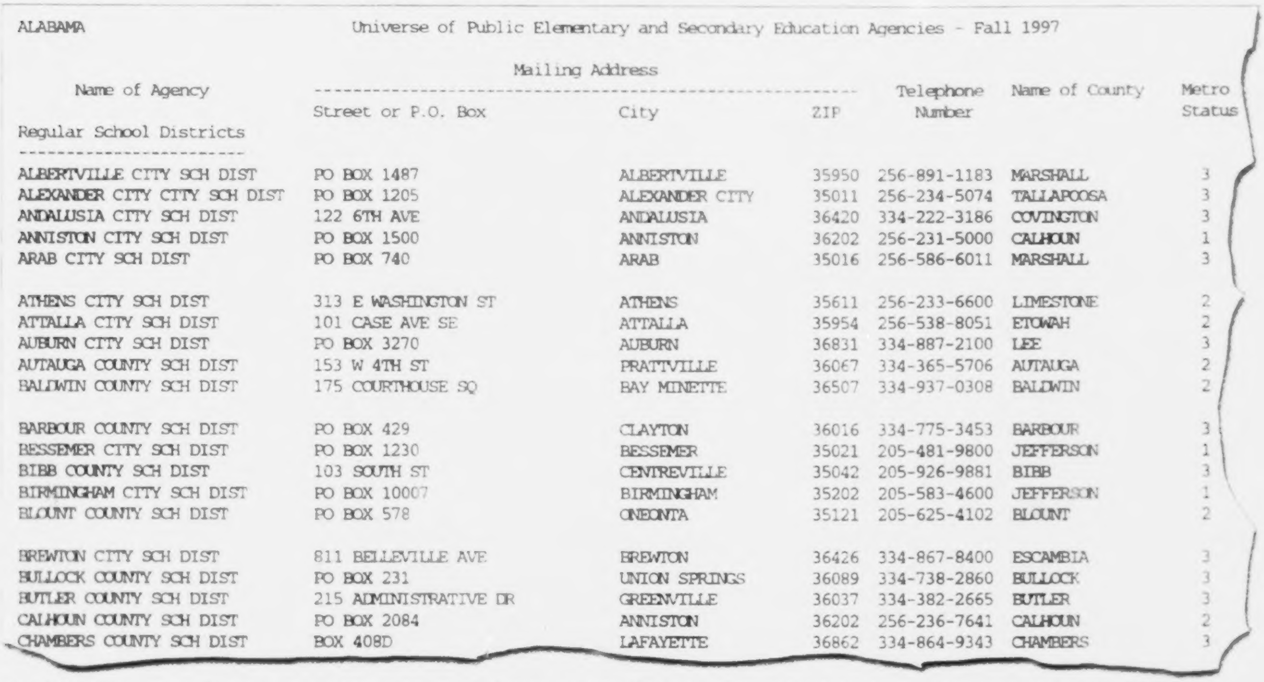
McDowell, L., and Sietsema, J. (2000). *Directory of Public Elementary and Secondary Education Agencies: 1997–98* (NCES 2000–367).

Author affiliations: L. McDowell and J. Sietsema, NCES.

For questions about content, contact Lena McDowell (*lena_mcdowell@ed.gov*).

To obtain the complete directory (NCES 2000–367), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Figure A.—Excerpt from listing of public elementary and secondary education agencies



ALABAMA — Universe of Public Elementary and Secondary Education Agencies - Fall 1997

Name of Agency	Mailing Address: Street or P.O. Box	City	ZIP	Telephone Number	Name of County	Metro Status
Regular School Districts						
ALBERTVILLE CITY SCH DIST	PO BOX 1487	ALBERTVILLE	35950	256-891-1183	MARSHALL	3
ALEXANDER CITY CITY SCH DIST	PO BOX 1205	ALEXANDER CITY	35011	256-234-5074	TALLAPOOSA	3
ANDALUSIA CITY SCH DIST	122 6TH AVE	ANDALUSIA	36420	334-222-3186	COVINGTON	3
ANNISTON CITY SCH DIST	PO BOX 1500	ANNISTON	36202	256-231-5000	CALHOUN	1
ARAB CITY SCH DIST	PO BOX 740	ARAB	35016	256-586-6011	MARSHALL	3
ATHENS CITY SCH DIST	313 E WASHINGTON ST	ATHENS	35611	256-233-6600	LIMESTONE	2
ATTALLA CITY SCH DIST	101 CASE AVE SE	ATTALLA	35954	256-538-8051	ETOWAH	2
AUBURN CITY SCH DIST	PO BOX 3270	AUBURN	36831	334-887-2100	LEE	3
AUTAUGA COUNTY SCH DIST	153 W 4TH ST	PRATTVILLE	36067	334-365-5706	AUTAUGA	2
BALDWIN COUNTY SCH DIST	175 COURTHOUSE SQ	BAY MINETTE	36507	334-937-0308	BALDWIN	2
BARBOUR COUNTY SCH DIST	PO BOX 429	CLAYTON	36016	334-775-3453	BARBOUR	3
BESSEMER CITY SCH DIST	PO BOX 1230	BESSEMER	35021	205-481-9800	JEFFERSON	1
BIBB COUNTY SCH DIST	103 SOUTH ST	CENTREVILLE	35042	205-926-9881	BIBB	3
BIRMINGHAM CITY SCH DIST	PO BOX 10007	BIRMINGHAM	35202	205-583-4600	JEFFERSON	1
BLOUNT COUNTY SCH DIST	PO BOX 578	ONEONTA	35121	205-625-4102	BLOUNT	2
BREWTON CITY SCH DIST	811 BELLEVILLE AVE	BREWTON	36426	334-867-8400	ESCAMBIA	3
BULLOCK COUNTY SCH DIST	PO BOX 231	UNION SPRINGS	36089	334-738-2860	BULLOCK	3
BUTLER COUNTY SCH DIST	215 ADMINISTRATIVE DR	GREENVILLE	36037	334-382-2665	BUTLER	3
CALHOUN COUNTY SCH DIST	PO BOX 2084	ANNISTON	36202	256-236-7641	CALHOUN	2
CHAMBERS COUNTY SCH DIST	BOX 408D	LAFAYETTE	36862	334-864-9343	CHAMBERS	3

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Directory of Public Elementary and Secondary Education Agencies: 1997–98* (NCES 2000–367).

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Student Data Handbook for Elementary, Secondary, and Early Childhood Education: 2000 Edition

Oona Cheung and Beth Aronstamm Young

This article was originally published as the Executive Summary of the handbook of the same name. This handbook helps to promote comparability of data at the local, state, and national levels, including data reported in the Common Core of Data (CCD) surveys.

To make appropriate, cost-effective, and timely decisions about students, educators must have accurate and complete information. Recognizing this need, most education systems have moved from paper documents in filing cabinets to automated student information systems. These systems provide teachers and others concerned with effective program design with day-to-day access to information about the students' background, learning experiences, and performance. They also provide the flexibility necessary to supply aggregate data to school boards, state and federal governments, and other interested parties and to conduct program evaluations. To be effective, however, these systems must record data accurately and comparably for all students, in all places, and at all times.

The *Student Data Handbook for Elementary, Secondary, and Early Childhood Education* was developed by the U.S. Department of Education's National Center for Education Statistics (NCES) to provide guidance concerning the consistent maintenance of student information. This handbook is useful to public and private education agencies, schools, early childhood centers, and other educational institutions, as well as to researchers involved in the collection of student data. In addition, the handbook may be useful to elected officials and members of the public interested in student information. This handbook is *not*, however, a data collection instrument, nor does it reflect any type of federal data maintenance requirements. It is presented as a tool to help the public and the American school system make information about students more useful and effective in meeting student needs.

This handbook was developed with the assistance of local, state, and federal education representatives and researchers. The definitions included are consistent with current state and local practice, national standards movements, and federal reporting requirements. The terms, definitions, and procedures represent a consensus of what is considered "best practice" in data collection; they should be interpreted and applied according to local, state, and federal reporting requirements and restrictions for confidentiality and security.

Standard Data Elements and Definitions

The data elements included in this handbook represent the types of student information that *could* be collected and maintained in permanent or temporary student records, whether in paper format or in an automated database. An attempt has been made to be as complete as possible, with the understanding that many data elements will not be needed for all students. Data elements are presented in nine areas:

- personal information;
- enrollment;
- school participation and activities;
- nonschool and postschool experience;
- assessment;
- transportation;
- health conditions;
- special program participation and student support services; and
- discipline.

Each data element is defined, and lists of options and definitions are included where applicable. Data elements are also associated with the entities to which they pertain, such as persons, places, or things, about which data may be stored.

Recommendations for Building a Student Record System

This handbook provides guidelines for designing student recordkeeping systems for use by schools, school districts, state education agencies, and other educational institutions.

Included is a discussion of the benefits of a well-designed student record system, as well as potential uses of such a system at the school, district, or state level. Also included is a description of a step-by-step process for designing an effective student record system.

Focus on State and Local Student Record Applications

Communication among various levels of the education system is increasingly important. More and more, states are requiring that schools or districts submit portions of student records to the state. Another growing trend is the electronic transmission of student records when students switch schools/districts or apply to postsecondary institutions. This revision of the handbook adds detail about automating and exchanging electronic records, with suggestions for formatting data elements and arranging them in a logical and flexible design.

References to Other Related Documents

This handbook, in conjunction with other NCES documents, provides state and local education officials with important tools for designing and implementing automated information systems. Recent NCES documents dealing with the confidentiality of student records, decision making about the installation of technology, and ensuring security of technology are important adjuncts to this handbook.

Organization of the Handbook

Chapter 1 provides the user with an introduction to the handbook and its uses.

Chapter 2 contains a more detailed description of the handbook's contents and uses of the handbook. Listings of other related documents that could be useful are also included. In anticipation of future updates, a description of the process for implementing suggested changes has been included.

Chapter 3, "Building a Student Record System," discusses the collection, use, and dissemination of data and information about individual students and how student record systems can benefit the students and the school system.

Chapter 4, "Data Elements and Definitions," includes a complete list of data terms (with definitions) considered important to the management of schools and the provision of services to students. Each entity listed refers to something, or someone, about which data should be maintained. Each data element refers to a particular aspect of student data for which some need was perceived within the school system. A definition is included for each entity and data element.

Chapter 5 describes possible applications of the handbook. A table is provided that includes information about data element type and field length, attributes that could be useful to readers designing a data collection system, a survey, or a reporting format.

Following the glossary and index are 12 appendices that contain important supplemental information. The appendices include comprehensive lists of coding options for some of the data elements in chapter 4. Included are code designations for states and outlying areas, countries, languages, occupational groupings, medical conditions and treatments, and listings of federal education programs and the names of those who contributed to the development of this revision.

This 2000 edition of the *Student Data Handbook* updates the 1994 edition. Beginning with this edition, the handbook will be updated annually, with revisions posted on the NCES Web Site.

Author affiliations: O. Cheung, Council of Chief State School Officers (CCSSO); B.A. Young, NCES.

For questions about content, contact Beth Aronstamm Young (*beth_young@ed.gov*).

To obtain the complete handbook (NCES 2000–343), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

ELEMENTARY AND SECONDARY EDUCATION

Trends in the Reading Performance of 9-, 13-, and 17-Year-Olds
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Trends in the Reading Performance of 9-, 13-, and 17-Year-Olds

This article was originally published as an Indicator of the Month, taken from The Condition of Education: 1999. *The sample survey data are from the National Assessment of Educational Progress (NAEP) Long-Term Trend Assessment.*

Reading ability is essential to students' educational progress. Since the early 1970s, the National Assessment of Educational Progress (NAEP) has assessed the trends in students' reading performance. These trends provide a picture of how student performance in reading has changed over time, specifically among students of different ages and racial/ethnic groups.

- For 9- and 13-year-olds, average reading scores improved slightly between 1971 and 1980 and showed little or no change between 1980 and 1996 (table 1a). Scores for 17-year-olds have remained relatively consistent since 1971.
- Females outscored males in reading performance across all age groups (table 1a).
- During these periods, reading scores of black and Hispanic students were lower than those of white students for all age groups (table 1b and figure 1a). However, the black-white score gap, in particular, changed over time. For all age groups, the gap decreased between 1971 and 1988, yet showed no significant change between 1988 and 1996 for 9- and 17-year-olds and increased for 13-year-olds (figure 1b).

Data source: The National Assessment of Educational Progress (NAEP) 1996 Long-Term Trend Assessment.

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/)*, or
- volume 2 of the printed version: *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

For questions about content, contact John Wirt *(john_wirt@ed.gov)*.

To obtain this Indicator of the Month (NCES 2000–006), call the toll free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Table 1a.—Average reading performance (scale score), by sex and age: 1971–96

Year	Total			Male			Female		
	Age 9	Age 13	Age 17	Age 9	Age 13	Age 17	Age 9	Age 13	Age 17
1971	208	255	285	201	250	279	214	261	291
1975	210	256	286	204	250	280	216	262	291
1980	215	259	286	210	254	282	220	263	289
1984	211	257	289	208	253	284	214	262	294
1988	212	258	290	208	252	286	216	263	294
1990	209	257	290	204	251	284	215	263	297
1992	211	260	290	206	254	284	215	265	296
1994	211	258	288	207	251	282	215	266	295
1996	212	259	287	207	253	280	218	265	294

Table 1b.—Average reading performance (scale score), by race/ethnicity and age: 1971–96

Year	White			Black			Hispanic		
	Age 9	Age 13	Age 17	Age 9	Age 13	Age 17	Age 9	Age 13	Age 17
1971	214	261	291	170	222	239	—	—	—
1975	217	262	293	181	226	241	183	232	252
1980	221	264	293	189	233	243	190	237	261
1984	218	263	295	186	236	264	187	240	268
1988	218	261	295	189	243	274	194	240	271
1990	217	262	297	182	242	267	189	238	275
1992	218	266	297	185	238	261	192	239	271
1994	218	265	296	185	234	266	186	235	263
1996	220	267	294	190	236	265	194	240	265

—Not available

NOTE: The reading performance scale has a range from 0 to 500. A score of 300 implies an ability to find, understand, summarize, and explain relatively complicated literary and informational material. A score of 250 implies an ability to search for specific information, interrelate ideas, and make generalizations about literature, science, and social studies materials. A score of 200 implies an ability to understand, combine ideas, and make inferences based on short, uncomplicated passages about specific or sequentially related information. A score of 150 implies an ability to follow brief written directions and carry out simple, discrete reading tasks.

SOURCE: U.S. Department of Education, National Center for Education Statistics. (1997, revised in 1998) *NAEP 1996 Trends in Academic Progress* (NCES 97–985).

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Figure 1a.—Average reading performance, by age and race/ethnicity: 1971–96

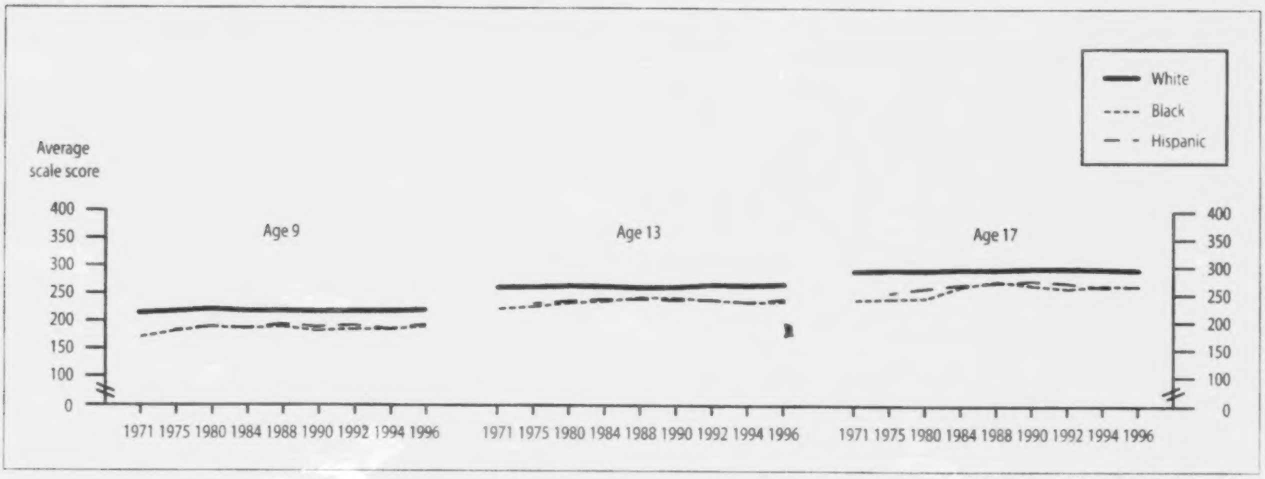
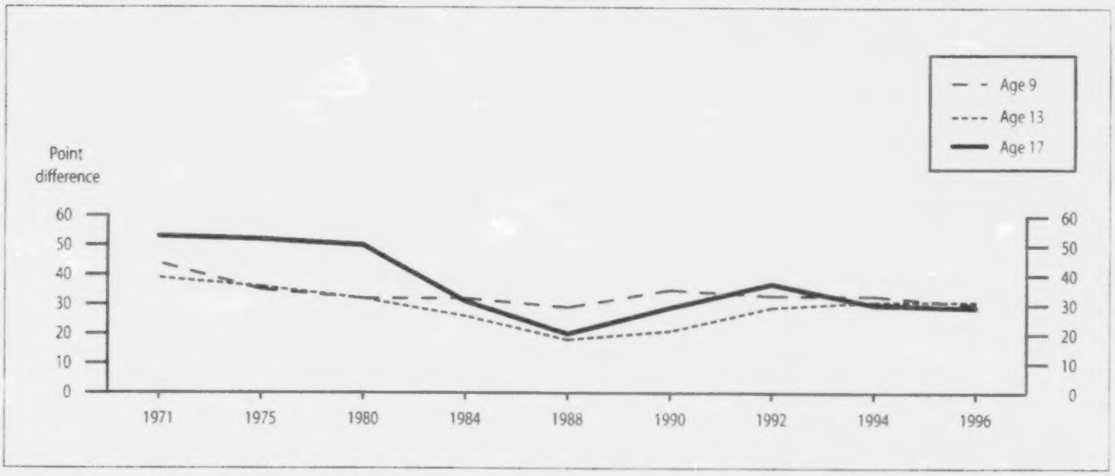


Figure 1b.—Difference in average reading performance (scale scores) between white and black students, by age: 1971–96



NOTE: The reading performance scale has a range from 0 to 500. A score of 300 implies an ability to find, understand, summarize, and explain relatively complicated literary and informational material. A score of 250 implies an ability to search for specific information, interrelate ideas, and make generalizations about literature, science, and social studies materials. A score of 200 implies an ability to understand, combine ideas, and make inferences based on short, uncomplicated passages about specific or sequentially related information. A score of 150 implies an ability to follow brief written directions and carry out simple, discrete reading tasks.

SOURCE: U.S. Department of Education, National Center for Education Statistics. (1997, revised in 1998). *NAEP 1996 Trends in Academic Progress* (NCES 97–985).

Teacher Use of Computers and the Internet in Public Schools

Cassandra Rowand

This article was originally published as a Stats in Brief report. The sample survey data are from the "Survey on Public School Teachers Use of Computers and the Internet," conducted through the NCES Fast Response Survey System (FRSS).

Since 1994, the National Center for Education Statistics (NCES) has documented the large increase in access to computers and the Internet in the nation's public elementary and secondary schools (Williams 2000). This increase has led to a need to understand the extent and types of teacher use of computers and the Internet, as well as teachers' perceptions of their own preparedness to use these tools in their classes. To address these critical information needs, NCES commissioned a survey using the Fast Response Survey System (FRSS) that was conducted in the spring of 1999. The survey found that 99 percent of full-time regular public school teachers reported they had access to computers or the Internet somewhere in their schools. This Stats in Brief focuses on those teachers.

How Do Teachers Use Computers and the Internet at School?

Teachers were asked the degree to which they used computers or the Internet to prepare for and manage their classes. Thirty-nine percent of public school teachers with access to computers or the Internet in their classroom or elsewhere indicated they used computers or the Internet a lot to create instructional materials, and 34 percent reported using computers a lot for administrative recordkeeping (table 1). Less than 10 percent of teachers reported using computers or the Internet to access model lesson plans or to access research and best practices.

Newer teachers were more likely to use computers or the Internet to accomplish various teaching objectives. Teachers with 9 or fewer years of teaching experience were more likely than teachers with 20 or more years of experience to report using computers or the Internet a lot to communicate with colleagues (30 percent with 3 or fewer years and 30 percent with 4 to 9 years, vs. 19 percent with 20 or more years) and gather information for lessons (21 and 22 percent vs. 11 percent for the same three groups). Also, teachers with 4 to 9 years of teaching experience were more likely to report they used computers or the Internet a lot to create instructional materials (47 percent) than were teachers with 20 or more years of experience (35 percent).

Table 1.—Percent of teachers indicating they use computers or the Internet a lot at school to accomplish various objectives, by school and teacher characteristics: 1999

School and teacher characteristics	Create instructional materials	Administrative record-keeping	Communicate with colleagues	Gather information for planning lessons	Multimedia classroom presentations	Access research and best practices for teaching	Communicate with parents or students	Access model lesson plans
All public school teachers with access to computers or the Internet at school	**39**	**34**	**23**	**16**	**8**	**7**	**7**	**6**
Teaching experience								
3 or fewer years	43	38	30	21	10	11	6	11
4–9 years	47	38	30	22	8	10	10	8
10–19 years	38	35	22	14	9	7	6	6
20 or more years	35	30	19	11	6	5	5	5
School instructional level								
Elementary school	37	29	25	14	7	7	7	6
Secondary school	44	47	21	19	8	8	6	7
Percent of students in school eligible for free or reduced-price school lunch								
Less than 11 percent	52	43	31	20	11	9	9	8
11–30 percent	42	37	27	19	7	9	8	8
31–49 percent	35	36	23	13	6	5	6	4
50–70 percent	35	30	15	10	8	5	4	4
71 percent or more	32	24	19	15	8	7	5	8

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

Teachers' use of computers or the Internet at school varied for some types of uses by school poverty level (the percentage of students in the school eligible for free or reduced-price lunches). Teachers in schools with a school poverty level of less than 11 percent were more likely to use computers or the Internet a lot for creating instructional materials (52 percent) than teachers in schools with a school poverty level of 71 percent or more (32 percent). This pattern also held for teachers who used computers for administrative recordkeeping (43 vs. 24 percent for the same groups).

How Do Teachers Direct Their Students to Use Computers and the Internet?

Sixty-six percent of public school teachers reported using computers or the Internet for instruction during class time (table 2). Forty-one percent of teachers reported assigning students work that involved computer applications such as word processing and spreadsheets to a moderate or large extent; 31 percent of teachers reported assigning practice drills and 30 percent reported assigning research using the Internet to a moderate or large extent (table 2).

The ways teachers direct students to use computers or the Internet varied by instructional level, school poverty level, and hours of professional development. Elementary school teachers were more likely than secondary school teachers to assign students practice drills using computers (39 vs. 12 percent) and to have their students use computers or the Internet to solve problems (31 vs. 20 percent). Secondary school teachers, however, were more likely to assign research using the Internet (41 vs. 25 percent). Teachers in the lowest poverty schools were more likely to report assigning students work involving computer applications, research using CD-ROMs, and research using the Internet to a moderate or large extent than teachers in the highest poverty schools (table 2).

Teachers with more professional development in the use of computers and the Internet over the last 3 years were more

Table 2.—Percent of teachers reporting using computers or the Internet for instruction and the percent assigning various uses to students to a moderate or large extent, by school and teacher characteristics: 1999

		Teacher assigns to a moderate or large extent								
School and teacher characteristics	Teacher uses for classroom instruction	Computer appli-cations[1]	Practice drills	Research using the Internet	Solve problems and analyze data	Research using CD-ROM	Produce multimedia reports/ projects	Graphical presen-tations of materials	Demon-strations/ simulations	Corre-spond with others[2]
All public school teachers with access to computers or the Internet at school	**66**	**41**	**31**	**30**	**27**	**27**	**24**	**19**	**17**	**7**
School instructional level										
Elementary school	68	41	39	25	31	27	22	17	15	7
Secondary school	60	42	12	41	20	27	27	23	21	7
Percent of students in school eligible for free or reduced-price school lunch										
Less than 11 percent	71	55	26	39	25	32	29	26	22	7
11–30 percent	65	45	29	35	29	27	23	18	16	9
31–49 percent	65	39	33	29	26	30	23	16	17	11
50–70 percent	62	33	33	25	27	24	25	19	13	5
71 percent or more	64	31	35	18	27	19	22	19	16	3
Hours of professional development[3]										
0 hours	41	21	19	20	14	16	16	10	8	4
1–8 hours	56	36	26	28	24	24	20	16	13	7
9–32 hours	72	47	35	32	30	31	26	21	19	8
More than 32 hours	82	55	43	42	41	34	37	31	29	9

[1] Use computer applications such as word processing, spreadsheets, etc.

[2] Correspond with experts, authors, students from other schools, etc., via e-mail or internet.

[3] Professional development in the use of computers or the Internet within the last 3 years.

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

likely to assign students various types of work involving computers or the Internet. For example, teachers with more than 32 hours of professional development were more likely to assign problem solving (41 percent) than were teachers with 0 hours (14 percent) or those with 1 to 8 hours (24 percent), graphical presentations (31 compared with 10 and 16 percent for the same groups), and demonstrations or simulations (29 compared with 8 and 13 percent for the same groups).

How Well Prepared Do Teachers Feel They Are to Use Computers and the Internet in Their Teaching?

When teachers were asked to focus specifically on the variety of potential uses of computers or the Internet in the classroom, 23 percent of public school teachers reported feeling well prepared and an additional 10 percent reported feeling very well prepared to use computers and the Internet in their teaching (table 3).* Teachers who reported assigning students work that involved corresponding with experts, authors, or students from other schools were more likely to report feeling very well prepared to use computers and the Internet than teachers who assigned practice drills to a moderate or large extent (30 vs. 14 percent).

Teachers with fewer years of experience and those with more hours of professional development felt better prepared

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*These figures differ somewhat from those presented in a previous report (Lewis et al 1999) containing similar information. These differences are discussed in a report to be released in summer 2000.

Table 3.—Percentage distribution of teachers with access to computers or the Internet at school according to the level of preparedness they feel to use computers and the Internet, by school and teacher characteristics: 1999

School and teacher characteristics	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
All public school teachers with access to computers or the Internet at school	**13**	**53**	**23**	**10**
School instructional level				
Elementary school	12	55	23	10
Secondary school	15	50	23	12
Percent of students eligible for free or reduced-price school lunch				
Less than 11 percent	10	53	25	12
11–30 percent	13	52	25	10
31–49 percent	14	51	24	10
50–70 percent	16	58	16	10
71 percent or more	13	55	22	10
Teaching experience				
3 or fewer years	10	46	31	13
4–9 years	10	49	28	13
10–19 years	14	55	21	10
20 or more years	16	58	19	8
Hours of professional development*				
0 hours	32	46	15	6
1–8 hours	19	55	20	6
9–32 hours	4	61	25	10
More than 32 hours	1	32	37	29
Type of work assigned to a moderate or large extent				
Use computer applications such as word processing, spreadsheets, etc.	4	45	33	19
Practice drills	4	54	27	14
Research using the Internet	4	43	34	19
Solve problems/analyze data	3	49	29	19
Research using CD-ROM	3	42	33	21
Produce multimedia reports/projects	5	38	33	24
Graphical presentation of materials	4	38	35	22
Demonstrations/simulations	2	34	37	28
Correspond with experts, authors, students from other schools, etc., via e-mail or Internet	4	32	34	30

*Professional development in the use of computers or the Internet within the last 3 years.

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table. Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

to use computers and the Internet for classroom instruction. Teachers with 3 or fewer years of teaching experience were more likely to feel well prepared to use computers and the Internet than teachers with 20 or more years of experience (31 vs. 19 percent). Teachers with more than 32 hours of professional development in the use of computers and the Internet within the last 3 years were more likely to report feeling very well prepared than teachers who had received 0 to 32 hours of formal professional development (29 vs. 6 to 10 percent). Teachers without recent professional development were more likely to report feeling not at all prepared to use computers and the Internet in classrooms than teachers who had received 1 or more hours of professional development.

A more extensive discussion of the results of this survey will be available in a report forthcoming in summer 2000. The report will focus on the relationships between school characteristics such as school level, school poverty level, school location, and school size and uses of computers and the Internet.

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Williams, C. (2000). *Internet Access in U.S. Public Schools and Classrooms: 1994–99* (NCES 2000–086). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data source: The NCES Fast Response Survey System, "Survey on Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

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To obtain this Stats in Brief (NCES 2000–090), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Elementary and Secondary School Enrollment

***This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999. *The universe data are from the NCES Common Core of Data (CCD), and the projected data are from* Projections of Education Statistics to 2008.**

School enrollment is one measure of the size of the educational system and of the demand for teachers, buildings, and educational resources. Past trends and projected future changes in the composition of enrollment across levels of education and regions of the country, as well as between public and private schools, indicate the amount of resources the nation requires.

- Total (public and private) elementary and secondary school enrollment increased considerably during the late 1980s and 1990s, reaching an all-time high of 52.7 million in 1998 (derived from table 1 and figure 1). This increase followed declining total enrollment in elementary and secondary schools during the 1970s and early 1980s (from 51.3 million in 1971 to 44.9 million in 1984).
- Total elementary and secondary school enrollment is projected to increase by 3 percent (to 54.3 million) between 1998 and 2008.
- Secondary school enrollments (grades 9–12) are projected to increase by 11 percent for both public and private schools between 1998 and 2008, while enrollment in prekindergarten through grade 8 is projected to decrease slightly.
- Total public school enrollment is projected to increase in the South and West (by 4 and 11 percent, respectively) but to decrease in the Northeast and Midwest (by 1 and 3 percent, respectively) between 1998 and 2008 (table 2 and figure 2).

Table 1.—Elementary and secondary school enrollment, by control and grade level of school, with projections: Fall 1970–2008

(In thousands)

	Public schools			Private schools[1]		
Year/period	Grades Pre-K–12	Grades Pre-K–8	Grades 9–12	Grades Pre-K–12	Grades Pre-K–8	Grades 9–12
1970	45,894	32,558	13,336	5,363	4,052	1,311
1988	40,189	28,501	11,687	5,241	4,036	1,206
1998	46,792	33,522	13,270	5,927	4,588	1,339
	Projected[2]			Projected[2]		
2008	48,201	33,455	14,746	6,067	4,579	1,488
	Percentage change			Percentage change		
1970–88	-12.4	-12.5	-12.4	-2.3	-0.4	-8.0
	Projected percentage change			Projected percentage change		
1988–98	16.4	17.6	13.5	13.1	13.7	11.0
1998–2008	3.0	-0.2	11.1	2.4	-0.2	11.1

[1] Beginning in fall 1980, data include estimates for the expanded universe of private schools.

[2] Enrollment includes students in kindergarten through grade 12 and some nursery school students.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics. (1999) *Digest of Education Statistics: 1998* (NCES 1999-036) (based on Common Core of Data); and (1998) *Projections of Education Statistics to 2008* (NCES 98-016).

Table 2.—Public elementary and secondary school enrollment, by region, with projections: Fall 1980–2008
(In thousands)

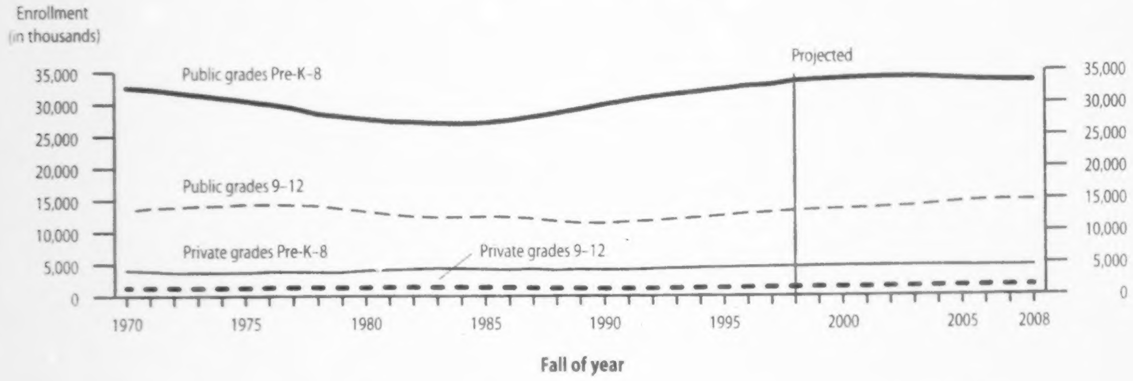
Fall of year	Northeast	Midwest	South	West
1980	8,215	10,698	14,134	7,831
1988	7,208	9,846	14,491	8,644
1990	7,282	9,944	14,807	9,184
1995	7,894	10,512	16,118	10,316
1998*	8,215	10,680	16,864	11,033
2008*	8,100	10,344	17,501	12,257
	Projected percentage change			
1988–98	14.0	8.5	16.4	27.6
1998–2008	-1.4	-3.1	3.8	11.1

*Projected enrollment. Enrollment includes students in kindergarten through grade 12 and some nursery school students.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1999) *Digest of Education Statistics: 1998* (NCES 1999–036) (based on Common Core of Data); and (1998) *Projections of Education Statistics to 2008* (NCES 98–016).

Figure 1.—Elementary and secondary school enrollment, by control and grade level of school, with projections: Fall 1970–2008



NOTE: Enrollment includes students in kindergarten through grade 12 and some nursery school students. Beginning in fall 1980, data include estimates for the expanded universe of private schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1999) *Digest of Education Statistics: 1998* (NCES 1999–036) (based on Common Core of Data); and (1998) *Projections of Education Statistics to 2008* (NCES 98–016).

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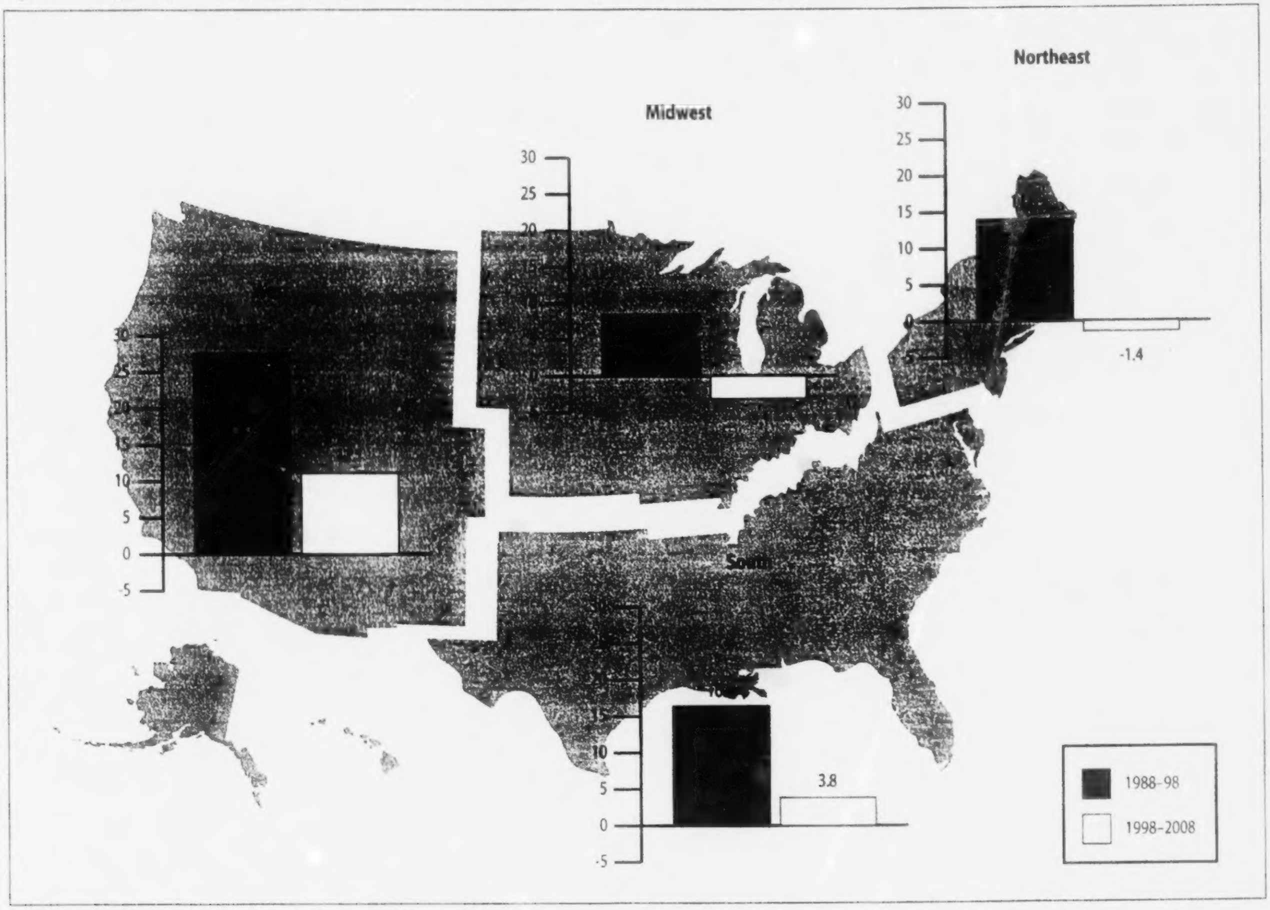
Figure 2.—Projected percentage change in public elementary and secondary school enrollment, by region: Fall 1988–2008



NOTE: Enrollment includes students in kindergarten through grade 12 and some nursery school students. Beginning in fall 1980, data include estimates for the expanded universe of private schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1999) *Digest of Education Statistics: 1998* (NCES 1999–036) (based on Common Core of Data); and (1998) *Projections of Education Statistics to 2008* (NCES 98–016).

Data sources: The NCES Common Core of Data (CCD), various years; and *Projections of Education Statistics to 2008* (NCES 98–016).

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/index.html)*, or
- volume 2 of the printed version: *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

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POSTSECONDARY EDUCATION

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Descriptive Summary of 1995–96 Beginning Postsecondary Students: Three Years Later, With an Essay on Students Who Start at Less-Than-4-Year Institutions

Lutz Berkner, Laura Horn, and Michael Clune

This article was originally published as the Foreword and Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES Beginning Postsecondary Students Longitudinal Study (BPS).

This report provides a description of the data collected in the first follow-up of the 1996 Beginning Postsecondary Students Longitudinal Study (BPS:1996/1998). The study is based on a sample of students who began their postsecondary education in 1995–96 and were initially interviewed in 1996 as part of the National Postsecondary Student Aid Study (NPSAS:1996). These first-time beginning students were interviewed again in mid-1998, about 3 years after they had started their postsecondary education. A major purpose of BPS is to provide information about the persistence of beginning students in postsecondary education and their attainment of any certificates or degrees at different types of institutions.

The report begins with an essay, which is followed by a compendium of tables. Because most students who began in 1995–96 would not have been enrolled long enough to complete a bachelor's degree at the time of the follow-up survey in 1998, the essay focuses on the persistence and attainment of students enrolled in programs leading to associate's degrees and vocational certificates at less-than-4-year institutions. In particular, it compares the outcomes of students in public institutions with those in private for-profit institutions 3 years after they first enrolled.

The compendium contains supplemental tables detailing persistence and attainment by various types of institutions

It also includes summary findings and tables about the characteristics of beginning students, with a particular emphasis on employment.

Enrollments and Persistence at Different Types of Institutions

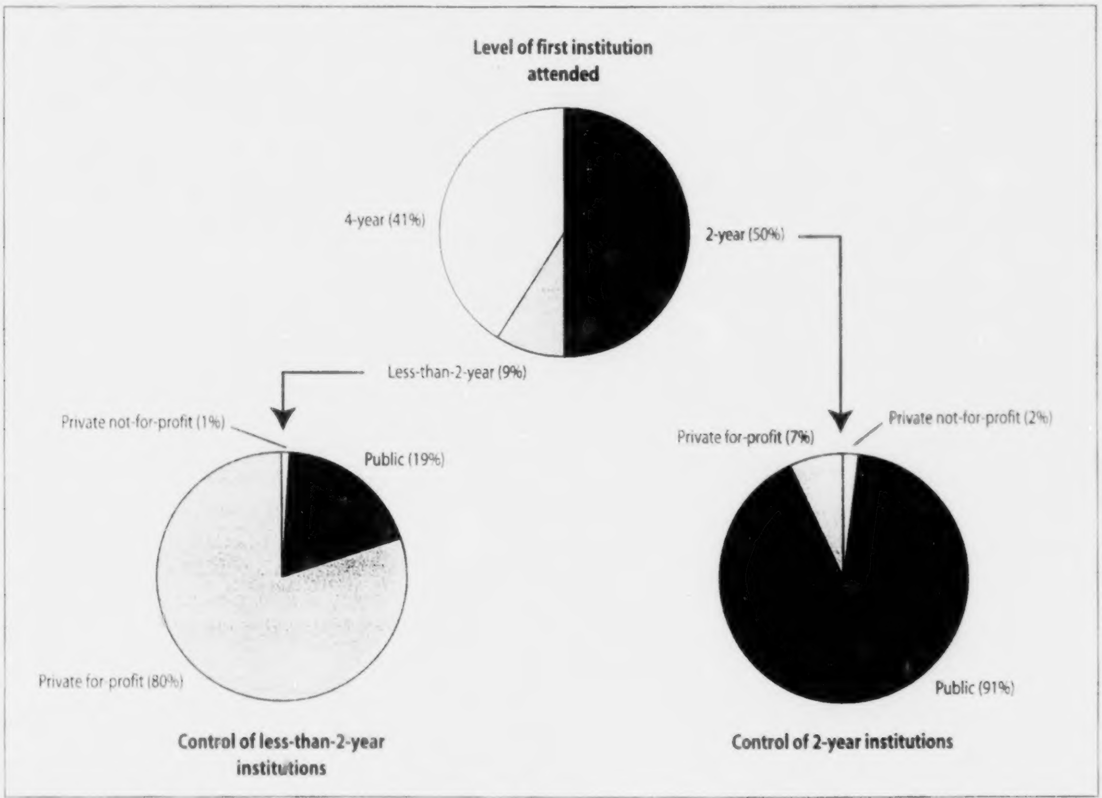
Of the roughly 3 million students who first enrolled in postsecondary education in 1995–96, about 40 percent began in 4-year institutions (usually in bachelor's degree programs), but the majority began at less-than-4-year institutions, including 50 percent at 2-year institutions and about 10 percent at less-than-2-year institutions (figure A). Less-than-2-year institutions offer only vocational certificate programs that can be completed in anywhere from a few months to just under 2 years. Two-year institutions offer both certificates and associate's degrees that require 2 to 3 years of full-time enrollment. The students who started at these less-than-4-year institutions in 1995–96 could have completed a certificate or associate's degree program by 1998, while those in 4-year bachelor's degree programs would normally just be completing their junior year of college.

Persistence and attainment of students at 4-year, 2-year, and less-than-2-year institutions

Attainment means that the student completed a program and earned a degree, defined broadly as including certificates. *Persistence* refers to all those who continued to be enrolled until they completed a program, and therefore includes those who attained a degree. Students who transferred from their original institution and continued to be enrolled or completed a program elsewhere have also persisted.

Figure B displays information about persistence and attainment 3 years after students first enrolled in 1995–96. Each institution sector is shown separately. Among those who started in 4-year institutions, 18 percent had left postsecondary education without a degree, about

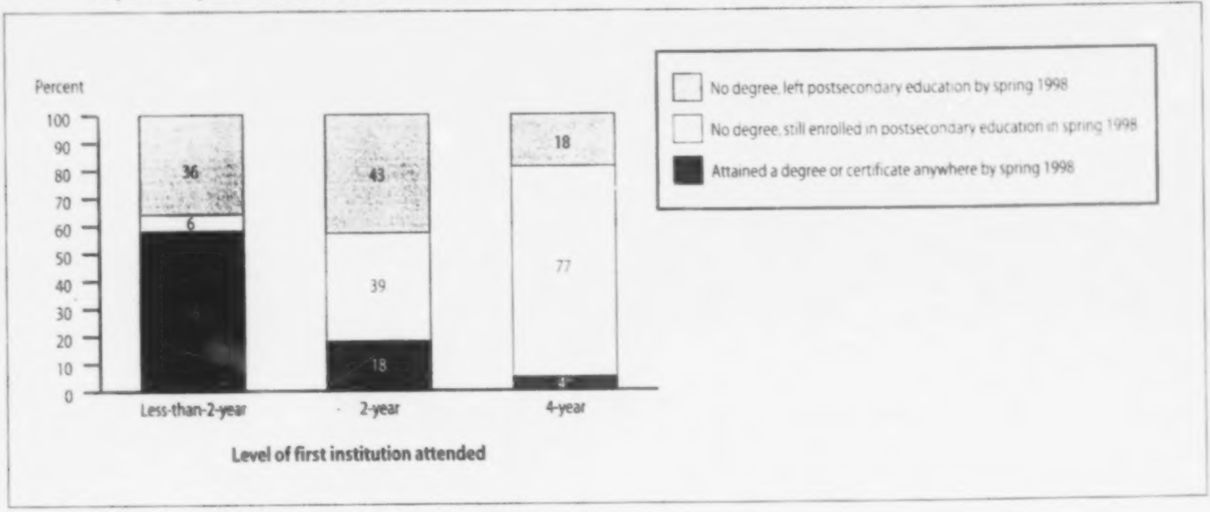
Figure A.—Percentage distribution of 1995–96 beginning postsecondary students according to level of institution first attended and, among those in less-than-4-year institutions, the percentage distribution according to institution control



NOTE: Detail may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

Figure B.—Percentage distribution of 1995–96 beginning postsecondary students after 3 years according to enrollment status and attainment (anywhere), by level of first institution attended



*One percent bachelor's degrees; 3 percent associate's and certificates.

NOTE: Detail may not sum to 100 due to rounding. The term "degree" includes certificates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study "First Follow-up" (BPS:1996/1998).

three-fourths were still enrolled without a degree, and a small percentage had attained a degree (mostly certificates and associate's degrees). That is, about 80 percent had persisted, but not necessarily at the institution where they first started.[1] Among those who started at 2-year and at less-than-2-year institutions, about 40 percent had left postsecondary education within 3 years without attaining a certificate or degree. The majority of those who started at less-than-2-year institutions had attained a certificate or degree (58 percent), compared with 18 percent of those who started at 2-year institutions.

Distribution of students across public and private for-profit 2-year and less-than-2-year institutions

As shown in figure A, most of the beginning students who enrolled in the 2-year sector (91 percent) attended *public* institutions, usually community colleges. Most of those in the less-than-2-year sector (80 percent) attended *private for-profit* institutions (also known as proprietary or private career schools). The community colleges have a broad range of missions, from job training to offering lower division courses for students who want to transfer to 4-year institutions. The private for-profit institutions generally only offer programs that prepare students for specific occupations.

Students Who Start at Less-Than-4-Year Institutions

The essay focuses on the less-than-4-year institutions, comparing the students who started at public with those who started at private for-profit institutions in terms of their degree programs, goals, and enrollment patterns. The analysis differentiates between students in certificate and associate's degree programs and further separates students in associate's degree programs into applied and liberal arts fields. One of the main questions addressed is why students who begin at less-than-4-year public institutions have lower rates of attainment than those who begin at less-than-4-year private for-profit institutions.[2]

Programs, degree goals, and purpose

In order to make a meaningful comparison between students who begin their postsecondary education at less-than-4-year public and private for-profit institutions, it is important to examine the types of programs in which students enroll and, further, why they have enrolled. Figure C illustrates how students in less-than-4-year public and private for-profit institutions were distributed with respect to both their program and field of study and their reported degree goals.

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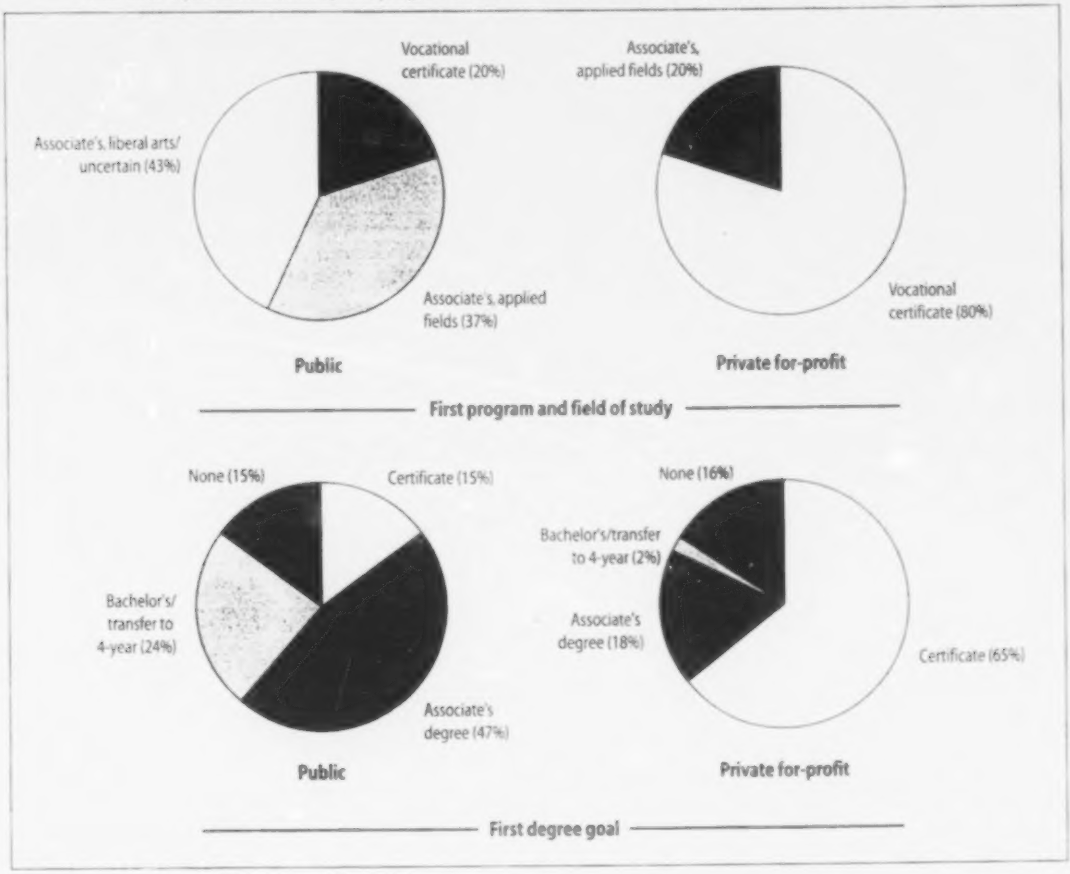
[1] Twenty percent of the freshmen transferred out of their initial 4-year institution.

[2] The analysis excludes about 2 percent of beginning students who are in less-than-4-year private not-for-profit institutions (primarily junior colleges).

Figure C.—Percentage distribution of 1995–96 beginning postsecondary students who first enrolled in public and private for-profit less-than-4-year institutions, by first program and field of study and by first degree goal



NOTE: Detail may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

Private for-profit institutions primarily offer short-term programs leading to vocational certificates. Accordingly, four-fifths of these students were enrolled in certificate programs, primarily in cosmetology, health assistance, secretarial, and mechanical trades. The remaining one-fifth were enrolled in applied associate's degree programs such as business, nursing/allied health, and engineering technology. Students beginning in public less-than-4-year institutions, on the other hand, were more likely to be enrolled in associate's degree programs than in vocational certificate programs. About 40 percent each were in applied associate's degree programs and in either liberal arts or undeclared associate's fields.[1]

An examination of beginning students' degree goals at the institution where they start clarifies their actual intentions with respect to their current enrollment. Unlike most private for-profit institutions, one of the missions of public 2-year institutions is to provide a means for students working toward a bachelor's degree to complete their lower division requirements and transfer to a 4-year institution. Students who transfer are not required to have earned an associate's degree, but if they successfully transfer, they have achieved their goal for that institution.

Students in public institutions primarily reported goals of earning an associate's degree (47 percent) or transferring to a 4-year college without a degree (24 percent). In contrast, students in private for-profit institutions indicated goals of obtaining a vocational certificate (65 percent) or an associate's degree (18 percent), while few indicated any transfer intentions (2 percent). In both the public and the private for-profit sectors, approximately the same percentage reported having no degree goal (15 and 16 percent, respectively). That is, they were probably enrolled to advance their occupational skills or for their own personal enrichment.

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[1] About one-third of the liberal arts/uncertain group had not declared majors.

When students in less-than-4-year institutions were asked to report their primary reason for enrolling (separate from their degree goals), two-thirds of those in private for-profit institutions indicated that they wanted to gain job skills, compared with one-quarter of those in public institutions. Correspondingly, about one-third of students in public less-than-4-year institutions reported plans to transfer to a 4-year college, compared with only 2 percent of those in private for-profit institutions.

Taking into account both students' degree goals and their primary purpose for enrolling, it is apparent that those enrolled in the private for-profit sector would be able to fulfill their intentions of earning a certificate or an associate's degree and, in the process, enhance their job skills all in the same institution. Students in the public sector, on the other hand, had less of an immediate occupational focus and often planned to transfer to a 4-year college without earning an associate's degree.

Persistence and attainment of students

A major difference between certificate and associate's degree programs is the time it takes to complete them. A vocational certificate program is often completed in about 1 year, while associate's degrees take at least 2 years to complete. Most of the beginning students at private for-profit less-than-4-year institutions were enrolled in short-term certificate programs (80 percent), while most of those in public institutions were enrolled in longer term associate's degree programs (80 percent) (figure C).

Not only were the beginning students in the private for-profit institutions primarily enrolled in shorter programs, but most of them (about three-fourths) were full-time students during their entire enrollment. At the public institutions, about one-half of the beginning students started their enrollment full time, but just one-third continued to attend full time as long as they were enrolled. Moreover, about one-fourth of those in the public institutions were always enrolled part time, compared with about one-tenth in the private for-profit institutions.

Full-time students are obviously able to progress through a program more quickly than part-time students. Since most of the students starting in the private for-profit sector were in shorter programs *and* attended full time as long as they were enrolled, it might be expected that they would have higher rates of degree attainment after 3 years than those who started at the public less-than-4-year institutions, where most of the students were in longer programs and less likely to attend full time.

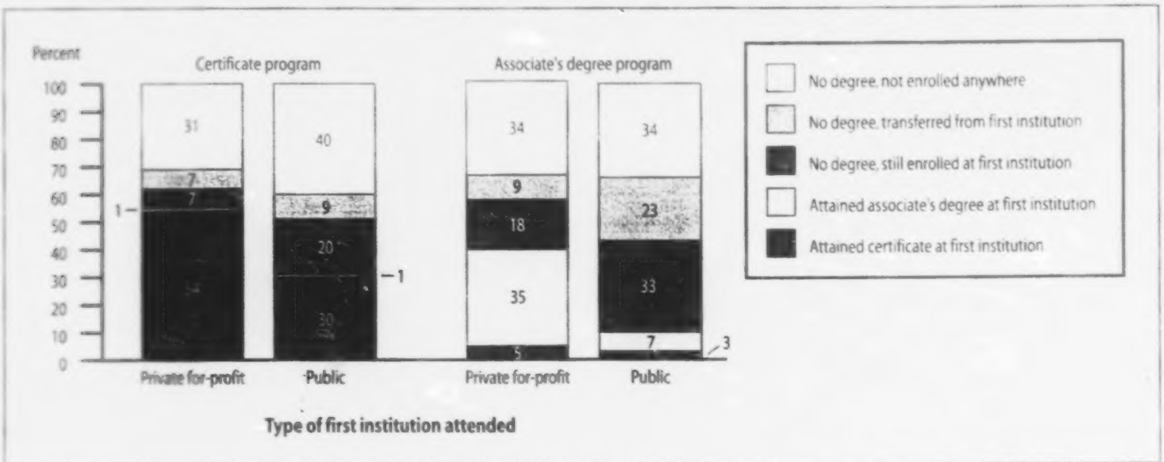
Comparing the students in the two sectors who began in vocational certificate programs and those who began in associate's degree programs controls for the effect of the difference in the length of these programs on attainment rates. The percentages displayed in figure D differentiate students who were still enrolled at the same institution from those who transferred and are limited to those who attained a degree at the first institution attended.

The differences in attainment rates at public and private for-profit institutions are still evident within certificate and associate's degree programs. About one-half (54 percent) of those who began in certificate programs at private for-profit institutions attained a certificate at the first institution attended, compared with 30 percent of those who began at public institutions. The percentage of beginning students in associate's degree programs who attained associate's degrees at the first institution was also higher at the private for-profit institutions than at the public institutions (35 percent compared with 7 percent).

There was no difference between sectors in the percentage of those in associate's degree programs who left postsecondary education from the first institution without a degree (34 percent). However, as might be expected from the difference in degree goals examined earlier, the percentage of those in associate's degree programs who left the first institution attended to transfer elsewhere was higher at the public than at the private for-profit institutions (23 percent compared with 9 percent).

The difference in the attainment rates of beginning students in the two sectors appears to be related to the much higher percentage of full-time students in the private for-profit institutions. In addition, the higher degree attainment rates

Figure D.—Percentage distribution of 1995–96 beginning postsecondary students who began in private for-profit and in public less-than-4-year institutions, by enrollment status and attainment at the first institution attended after 3 years



NOTE: Detail may not sum to 100 due to rounding. The term "degree" includes certificates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

at the for-profit institutions may be related to their term structure. Many for-profit institutions offer programs that allow continuous enrollment without regular term structures or summer vacations. This is reflected in the time it took students to attain degrees or certificates. Those full-time students who completed certificates at private for-profit institutions finished in an average of 12 months, while those who completed certificates at public institutions required an average of 16 months. Similarly, those who completed an associate's degree at public institutions took an average of 25 months, 3 months longer than those who received an associate's degree at private for-profit institutions by 1998.

Conclusions

Many of the differences in the enrollment experiences of beginning students at private for-profit and at public less-than-4-year institutions reflect the differences in the type of program in which they were enrolled. Eighty percent of the students in the private for-profit institutions began in vocational certificate programs, while about 80 percent of the students in the public institutions began in associate's degree programs, which take longer to complete. Nevertheless, the attainment rates for both vocational certificates and associate's degrees were much higher for students who began in private for-profit institutions.

There were also distinct differences in degree goals, reasons for enrolling, and attendance patterns between students in the two sectors that contribute to explaining some of the attainment differences. Compared with students in public less-than-4-year institutions, those in private for-profit less-than-4-year institutions

- were more likely to focus on gaining job skills;
- had degree goals specific to the programs offered at the first institution attended and were less likely to have intentions of transferring to a 4-year college;
- were more likely to attend full time for the duration of their enrollment; and
- completed their certificate or associate's degree programs in a shorter time.

Data source: The NCES 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

For technical information, see the complete report:

Berkner, L., Horn, L., and Clune, M. (2000). *Descriptive Summary of 1995–96 Beginning Postsecondary Students: Three Years Later, With an Essay on Students Who Start at Less-Than-4-Year Institutions* (NCES 2000–154).

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To obtain the complete report (NCES 2000–154), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Low-Income Students: Who They Are and How They Pay for Their Education

Susan P. Choy

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are primarily from the NCES National Postsecondary Student Aid Study (NPSAS), but also from the Beginning Postsecondary Students Longitudinal Study (BPS).

Students from low-income families typically need substantial financial assistance to be able to attend college. This report examines the characteristics of low-income undergraduates and how they pay for college. It begins with a profile of low-income students, comparing them with their not-low-income counterparts. Then, focusing on low-income students who attend full time, full year, it examines their financial need, describes the contribution of financial aid, and presents what is known about how they close the gap between what they have to pay and the amount of aid they receive. Finally, the report compares 3-year persistence among low-income and not-low-income undergraduates.

For the purposes of this report, low-income students were defined as those whose family income was below 125 percent of the federally established poverty level for their family size. Because the prices students pay and the financing strategies they adopt vary substantially with institutional level and control, students at public 4-year, private not-for-profit 4-year, and public 2-year institutions are examined separately. Within institution type, dependents, independents without dependents, and independents with dependents are also considered separately because their financial obligations are quite different, and they are treated differently by the financial aid system.

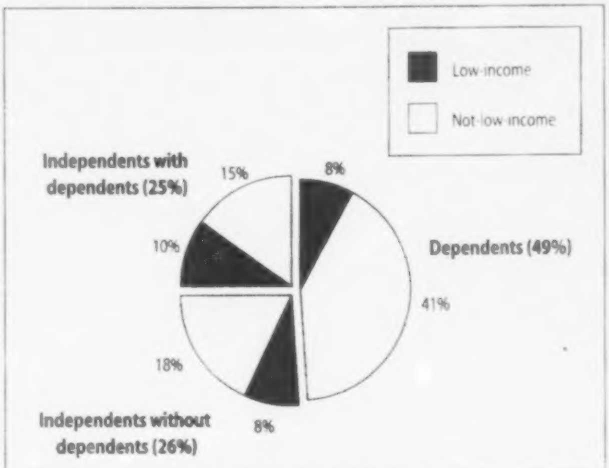
The analysis relies primarily on the National Center for Education Statistics (NCES) 1995–96 National Postsecondary Student Aid Study (NPSAS:1996), but also uses selected data from NPSAS:1993 for comparison and data from the 1996 Beginning Postsecondary Students Longitudinal Study (BPS:1996/1998) to examine persistence.

Profile of Low-Income Undergraduates

In 1995–96, 26 percent of all undergraduates were low income. At private not-for-profit 4-year, public 4-year, and public 2-year institutions, the proportion of students who were low income ranged from 21 to 26 percent. A much greater proportion of students at private for-profit institutions were low income (48 percent), but relatively few (about 5 percent of all undergraduates) attended this type of institution.

About one-half (49 percent) of all undergraduates were dependents, and a relatively small proportion were from low-income families (figure A). The other half of the undergraduate population was about evenly divided between independents without and with dependents of their own. (Spouses are not considered dependents.) Independent students were more likely than dependents to be low income because their parents' financial circumstances are not considered for aid purposes.

Figure A.—Percentage distribution of undergraduates by income and dependency status: 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:1996), Undergraduate Data Analysis System.

Overall, 17 percent of dependent undergraduates were defined as low income. Certain groups were particularly likely to be in this category, including minorities and students whose parents had not gone to college. As parents' education increased, the percentage who were low income decreased (from 55 percent when both parents had less than a high school diploma to 23 percent when at least one parent had finished high school to 12 percent when at least one parent had attended college).

Independents without dependents were almost twice as likely as dependents to be low income (31 percent were in this category). Rather than reflecting a disadvantaged background (there was no strong relationship between parents' education and students' low-income status), low-income status was closely related to marital status, age, and employment and enrollment status. Independents without dependents were much more likely to be low income if they were single rather than married. The likelihood of being low income declined with age, in part because older students are more likely to be married and have greater earning potential. Students who did not work or considered themselves primarily students were more likely to be low income than those who considered themselves primarily employees. About half of those who enrolled full time, full year (51 percent) were low income.

Independents with dependents include single or married students with children or other dependents. As indicated earlier, spouses are not considered dependents; their incomes are included in calculating family income. This group was the most likely to be low income (40 percent). As was true for independents without dependents, low-income status was related to marital status, age, and primary role while enrolled (student or employee). Fifty-six percent of single parents were low income; the younger the students, the more likely they were to be low income; and they were more likely to be low income if they did not work or if they worked but considered themselves primarily students.

Financial Need

Financial need is the difference between the price of attending a postsecondary institution (the "student budget") and what the student is expected to pay based on the family's financial circumstances. Compared with the average prices of attending the different types of institutions, the average expected family contributions (EFCs) for low-income students were relatively small (table A). Consequently, virtually all low-income undergraduates attending full time, full year had financial need (that is, the student budget minus EFC was greater than zero). The amounts of financial need were substantial at all types of institutions, ranging from about $5,800 to $16,700, varying with dependency status and type of institution (table A).

Financial Aid

Most low-income students attending full time, full year (86 percent) received some financial aid, and the average amount received by low-income students (calculated including those with no aid) was about $6,100. Most (81 percent) received grants, which averaged $3,900 for those who received them. Loans were an important source of aid as well, with 51 percent borrowing. The average loan for those who borrowed was $4,700.

Most borrowers (66 percent) did not reach the maximum permitted under the Stafford loan program. As did financial need, aid patterns for full-time, full-year low-income students varied substantially by type of institution and dependency status.

Aided low-income students attending full time, full year had about 60 percent of their budgets covered by aid. About 60 percent of their aid was in the form of grants and 32 percent was in the form of loans; the rest came from work-study and "other" types of aid. Again, these proportions varied considerably by dependency status and institution type.

Closing the Gap

The net price that low-income students pay for their education is the difference between the student budget and financial aid. This represents the amount that students must come up with to pay for their education. Even for low-income students attending full time, full year, a substantial part of this gap is met by student earnings while enrolled (table A). These earnings do not cover the net price, however. For dependent students, the amounts left after taking into account student earnings appear to be considerably higher than their families could afford to cover (and that data on parent contributions suggest that they are covering), especially at private not-for-profit 4-year institutions. For independents without dependents, earnings cover most of the net price at public 4-year institutions, but the gaps at private not-for-profit 4-year institutions and public 2-year institutions are large. The pattern is similar for independents with dependents.

Despite these apparent gaps between the net price of attending and students' financial resources, the students are enrolled. How do they manage? One possibility is that they are surviving on a lower budget than estimated by their institutions. Other possibilities are that students are actually earning more than estimated (students often have numerous short-term jobs), are able to save from summer earnings, or have savings accumulated before they enrolled. Yet another is that they have received more than estimated from their parents. Or, they may be borrowing from sources other than student loan programs.

Table A.—Average student budget, EFC, financial need, total aid, unmet need, net price, and earnings for low-income undergraduates enrolled full time, full year, by type of institution and dependency status: 1995–96

	Student budget	Expected family contribution (EFC)	Financial need[1]	Total aid	Unmet need[2]	Net price[3]	Earnings
Total[4]	$11,579	$768	$10,876	$6,116	$4,844	$5,443	$2,889
Type of institution and dependency status							
Public 4-year	10,745	760	10,051	6,256	3,903	4,487	3,236
Dependents	10,300	932	9,488	5,531	4,056	4,763	2,593
Independents without dependents	11,137	808	10,329	6,660	3,835	4,476	3,750
Independents with dependents	11,347	149	11,226	7,677	3,564	3,672	3,630
Private, not-for-profit 4-year	17,203	1,127	16,264	10,060	6,367	7,145	2,801
Dependents	17,917	1,503	16,703	10,286	6,622	7,633	2,187
Independents without dependents	16,745	797	16,012	10,718	5,444	6,030	3,613
Independents with dependents	15,237	223	15,014	8,226	6,814	7,012	3,470
Public 2-year	7,659	606	7,051	3,059	4,088	4,598	2,361
Dependents	6,409	637	5,768	2,447	3,354	3,962	2,745
Independents without dependents	9,025	1,128	7,897	3,399	4,871	5,627	1,418
Independents with dependents	8,112	264	7,848	3,482	4,367	4,630	2,478

[1] Student budget minus EFC. In this table, the difference between the average student budget and the average expected contribution is not exactly equal to the average financial need because of missing data for each variable. The same is true for other computed differences in this table. No variable used to compute differences has more than 1 percent missing data for full-time, full-year low-income undergraduates.

[2] Student budget minus EFC minus aid.

[3] Student budget minus all aid.

[4] Includes students who attended types of institutions other than those included here.

NOTE: Table limited to students who attended only one institution. Averages computed including zero values. For example, average total aid is computed including students with no aid.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:1996), Undergraduate Data Analysis System.

The actual contributions of parents and other family members are difficult to determine because families typically do not keep detailed records and this type of information is difficult to recall many months later in a telephone interview. In addition to the amounts reported as allowances, about one-third of all low-income students attending full time, full year reported that their parents paid for all or part of their tuition, housing, meals, or books, but we do not know how much this amounts to. Low-income independent students do not necessarily come from low-income backgrounds, so their parents may have substantial resources.

Low-Income Status and Persistence

Many worry that financial problems may force low-income students to drop out or interrupt their education. Persistence is affected by a variety of factors other than income. In order to determine whether persistence is associated with low-income status independently of these other factors, a multivariate analysis was conducted. The results show that low-income students who began their postsecondary education in 1995–96 were less likely than their not-low-income counterparts to have earned a degree or certificate or still be enrolled in 1998. This was true even after controlling for student background (gender, race/ethnicity, and parents' education) and other factors likely to affect persistence (dependency status, institution type, enrollment delay after high school, enrollment status, amount worked, borrowing, and assistance from parents).

Data sources: The NCES 1992–93 and 1995–96 National Postsecondary Student Aid Study (NPSAS:1993 and NPSAS:1996); and 1996 Beginning Postsecondary Students Longitudinal Study (BPS:1996/1998).

For technical information, see the complete report:

Choy, S.P. (2000). *Low-Income Students: Who They Are and How They Pay for Their Education* (NCES 2000–169).

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For questions about content, contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

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Trends in Undergraduate Borrowing: Federal Student Loans in 1989–90, 1992–93, and 1995–96

Lutz Berkner

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Postsecondary Student Aid Study (NPSAS).

Introduction

Between academic years 1989–90 and 1995–96, the total dollar volume in federal student loans doubled, increasing from about $13 billion to about $28 billion (The College Board 1998).[1] Nearly 90 percent of these funds were received by students as federal Stafford loans or Supplemental Loans to Students (SLS).[2] SLS loans were replaced by unsubsidized Stafford loans in 1993–94. Stafford and SLS were closely related programs and are treated together in this report.

The total amount borrowed by *undergraduates* through the Stafford/SLS programs increased by about $2 billion between 1989–90 and 1992–93, from approximately $8 billion to $10 billion. Three years later, in 1995–96, the total undergraduate Stafford loan volume had increased by $7 billion, to approximately $17 billion.[3] The larger increases in loan volume during the second period came after the 1992 Reauthorization of the Higher Education Act, in which Congress made substantial changes in the federal financial aid need analysis and the structure of the federal student loan programs.

There are two broad categories of federal student loans, subsidized and unsubsidized. For *subsidized* loans, students are not charged interest while they are enrolled. In order to qualify for an interest-free subsidized loan, students must demonstrate financial *need*. For *unsubsidized* loans, the federal government does not pay any of the interest for the students, who may obtain them to pay for educational expenses without demonstrating need. Depending on the circumstances, students may obtain either subsidized or unsubsidized loans, or a combination of both. In determining the need for financial aid, students are considered either *dependent* on their parents for support or *independent* and self-supporting. The federal student loans have *limits* on the maximum amounts that students may borrow. These limits vary by dependency, class level, and the type of loan. In general, independent students may borrow larger amounts than dependent students by combining subsidized and unsubsidized loans.

Some of the major changes in the 1992 Reauthorization that affected the eligibility of undergraduates for federal loans, and the amounts that they could borrow, were the following:

- The loan limits on subsidized Stafford loans were increased (except for first-year students).
- Changes were made in federal need analysis (such as eliminating the consideration of home equity) that generally made it easier for dependent students to qualify for subsidized Stafford loans.
- For some independent students, changes in need analysis reduced eligibility for federal Pell grants,[4] but increased their eligibility for subsidized loans.
- Unsubsidized loans were made generally available to dependent students for the first time.
- The separate SLS program of unsubsidized loans for independent students was phased out and replaced by unsubsidized loans for all students through the Stafford program.
- Dependent and independent students could borrow either subsidized, unsubsidized, or a combination of both types of Stafford loans. The maximum amounts of the combined loans for independent students were about double the amounts available to dependent students, however.

Most of these changes, directly or indirectly, allowed more undergraduates to borrow, and to borrow larger amounts, beginning in 1993–94. In economic terms, there was a substantial increase in the supply of federal loan funds. This report analyzes the effect of the 1992 Reauthorization by comparing undergraduate borrowing patterns in two 3-year periods: from 1989–90 to 1992–93, before the changes; and between 1992–93 and 1995–96, when the changes to the programs were implemented.

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[1] These totals include all federal loan programs and both graduate and undergraduate borrowers.

[2] Calculated from data in *Trends in Student Aid 1998* (The College Board 1998). The other smaller federal student loan programs are PLUS loans for parents, Perkins loans, and loans to students in the health professions.

[3] These estimates for undergraduates are based on unpublished data from the Department of Education's National Student Loan Data System. Approximately one fourth of the Stafford/SLS loan amounts were received by graduate and first professional students.

[4] The Pell grant program provides grant aid to undergraduates attending postsecondary institutions.

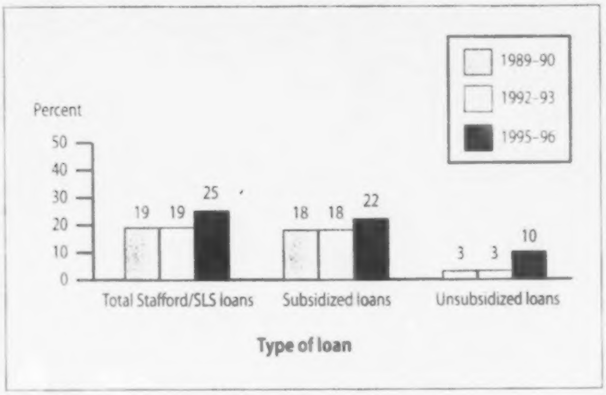
Changes in Borrowing: Key Findings

In 1989–90, about one-fifth (19 percent) of all undergraduates received Stafford/SLS loans, and this percentage had not changed in 1992–93 (figure A). However, during the same time period, the average loan amount increased (in current dollars) by $500, from $2,600 to $3,100 (figure B). Three years later, when the new loan program rules were in effect, both the percentage of students borrowing (25 percent) *and* the average loan amounts had increased.

Dependent borrowers

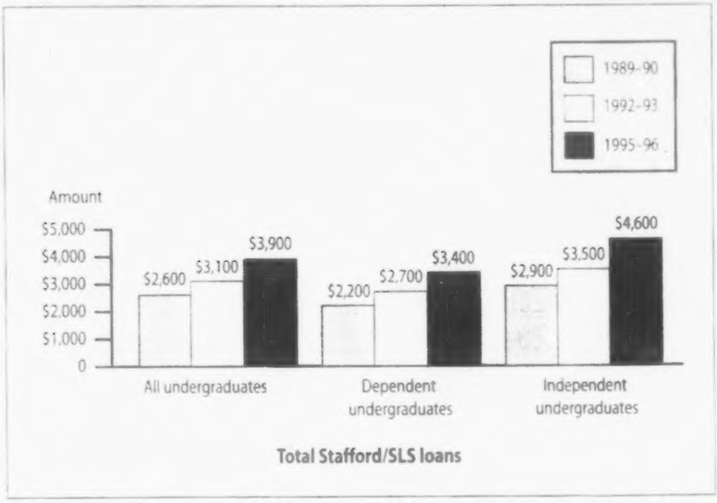
Between 1992–93 and 1995–96, borrowing rates increased substantially among dependent students, rising from 20 to 29 percent. When unsubsidized loans were generally available to dependent students in 1995–96, 9 percent of all dependent students obtained them. In 1995–96, about one-third of the dependent borrowers had unsubsidized loans, either alone (16 percent) or combined with a subsidized loan (15 percent) (figure C). The proportion of dependent

Figure A.—Percentage of all undergraduates receiving subsidized and unsubsidized Stafford loans or Supplemental Loans to Students (SLS) in 1989–90, 1992–93, and 1995–96



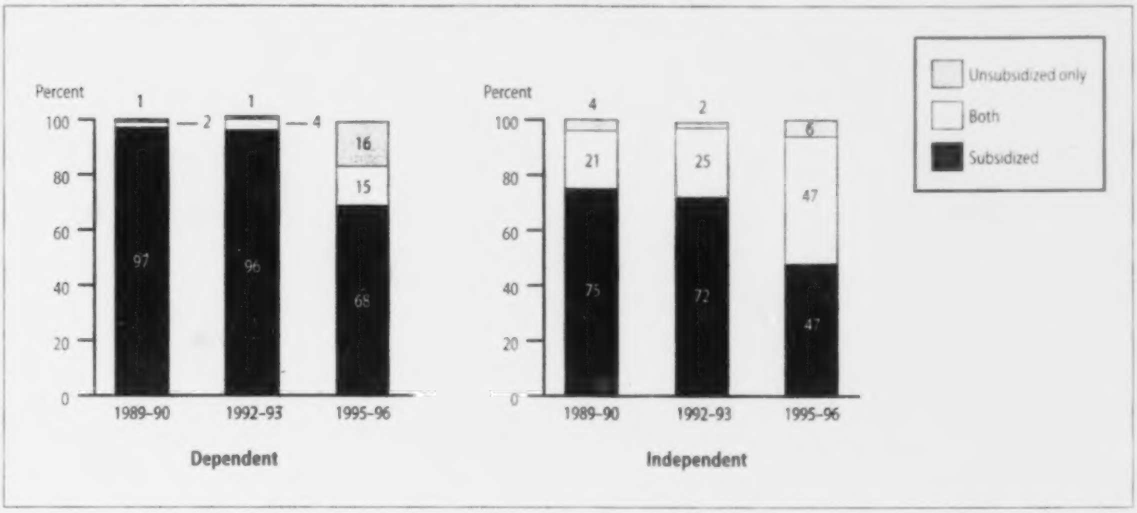
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

Figure B.—Average amount of total Stafford loans or Supplemental Loans to Students (SLS) received by dependent and independent undergraduates in 1989–90, 1992–93, and 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

Figure C.—Percentage distribution of undergraduate Stafford/Supplemental Loans to Students (SLS) recipients with subsidized, unsubsidized, or a combination of both loans, by dependency in 1989–90, 1992–93, and 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

student borrowers with unsubsidized loans increased at higher family income levels. Among the borrowers in the highest income quartile, two-thirds received unsubsidized loans, compared with just 13 percent of the borrowers in the lowest income quartile. One-half of the borrowers in the highest income quartile received only unsubsidized loans, which means that they did not qualify for the need-based loans.

The changes in the loan programs and federal need analysis allowed for increased participation in the Stafford loan program by dependent students at the middle and higher income levels. Between 1989–90 and 1992–93, before the changes in the loan programs, borrowing rates had increased only in the lowest income quartile (figure D). After the changes, there was no further increase in the lowest income quartile, but there were higher borrowing rates of subsidized loans in the second income quartile, of both subsidized and unsubsidized loans in the third income quartile, and of unsubsidized loans in the highest income quartile.

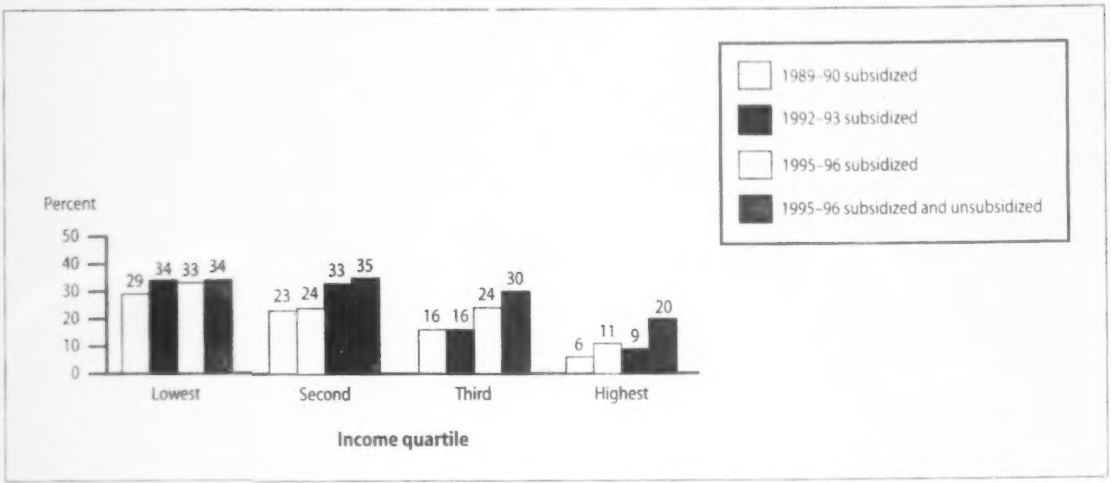
The average loan received by dependent students increased by $500 (from $2,200 to $2,700) from 1989–90 to 1992–93, before the loan limits were raised. In that period, the percentage of dependent borrowers with the maximum loan amounts increased from one-third to one-half. Between 1992–93 and 1995–96, when the loan limits were higher and those who did not qualify for the maximum subsidized loan could supplement it with an unsubsidized loan, the average total loan increased again, by $700, to $3,400. The percentage borrowing the maximum amount rose to nearly 60 percent.

Independent borrowers

Although unsubsidized loans had been generally available to independent students in 1989–90 and 1992–93, the percentage obtaining them doubled in 1995–96 (from 5 percent to 11 percent). In the earlier years, about one-fourth of the independent student borrowers had unsubsidized loans, usually in combination with subsidized loans. In 1995–96, this proportion had doubled, and one-half of the independent student borrowers now had unsubsidized loans (figure C). Independent borrowers in the highest income quartile were the most likely to take out unsubsidized loans, either alone (27 percent) or in combination with a subsidized loan (44 percent). However, about one-half of the borrowers in the other three income quartiles also obtained unsubsidized loans, usually in combination with subsidized loans.

Because independent students could receive a combination of subsidized and unsubsidized loans with higher limits, their average loan amounts were higher than those of dependent students in all 3 years (figure B). However, independent students did not typically borrow as much as the loan limits. About one-half of the independent students borrowed the maximum subsidized amounts (which were

Figure D.—Percentage of all dependent undergraduates receiving Stafford loans or Supplemental Loans to Students (SLS), by family income quartiles in 1989–90, 1992–93, and 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

interest-free while enrolled) in all 3 years. The percentage who borrowed the maximum combined total (up to $8,000 before 1993–94, then up to $10,500) was much lower, but it did increase from just 3 percent in 1989–90 to 13 percent in 1995–96.

The large increase in the proportion of independent student borrowers who took out unsubsidized loans in addition to subsidized loans (from about one-fourth in 1992–93 to about one-half in 1995–96) may be related in part to the organizational changes in the Stafford loan program. Unsubsidized loans were available to independent students in 1992–93 and earlier through the SLS program, but required filing a separate application in addition to the application for a subsidized Stafford loan. When unsubsidized loans became available through the same Stafford loan program, they were processed as part of the same application used for subsidized loans, and applicants were notified of the amount of unsubsidized loans for which they qualified.

Borrowing at different types of institutions

In any particular year, borrowing rates reflected differences in the average tuition levels at public 2-year, public 4-year, and private not-for-profit 4-year institutions. Students were least likely to borrow at relatively low-tuition public 2-year (community) colleges, more likely to borrow at public 4-year institutions where average tuition is about three times higher, and even more likely to borrow at private not-for-profit 4-year institutions where average tuition is about three times higher than at public 4-year institutions. The highest borrowing rates in all 3 years were among students at private for-profit institutions, which charged relatively high tuition and also enrolled large proportions of low-income students attending full time.

The percentage of all undergraduates with Stafford/SLS loans at public 2-year institutions remained low (6 percent or less) in all 3 years, although there was an increase in the percentage of full-time, full-year students obtaining loans (from 9 percent in 1989–90 to 15 percent in 1995–96). At the private for-profit institutions, the borrowing rates dropped between 1989–90 and 1992–93, but remained higher than in all other sectors (about 50 percent of all students borrowed). As a result of regulatory changes that restricted participation in the Stafford loan program of institutions with high default rates, the proportion of student borrowers attending private for-profit institutions dropped from 29 percent in 1989–90 to 12 percent in 1995–96.

At the 4-year colleges and universities, there was a large growth in the percentage of all undergraduates borrowing between 1992–93 and 1995–96, both at the public institutions (from 23 percent to 35 percent) and at the private not-for-profit institutions (from 33 percent to 43 percent). In 1995–96, about 70 percent of all undergraduates receiving Stafford loans were attending 4-year institutions (45 percent at public and 26 percent at private not-for-profit institutions)

Tuition and borrowing at 4-year institutions

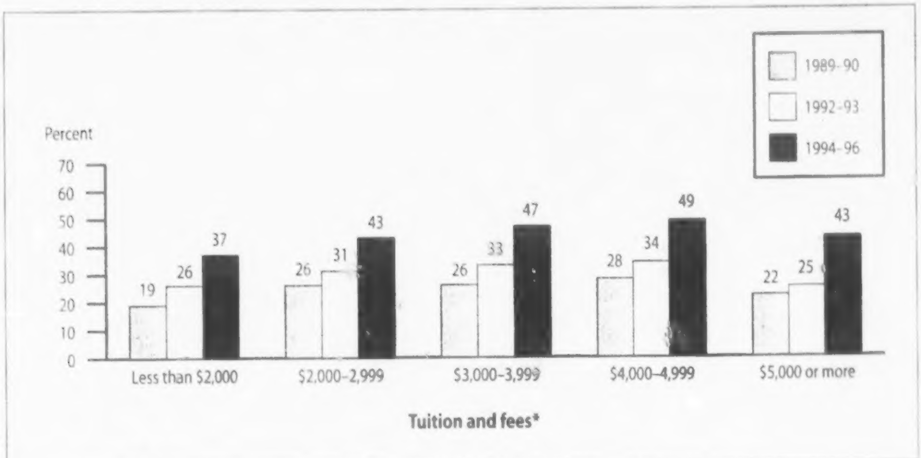
At the public 4-year institutions, the average tuition for full-time, full-year undergraduates increased by $800 between 1989–90 and 1992–93 (from $2,200 to $3,000), and by another $800 in 1995–96 (to $3,800). The change in the percentage of full-time, full-year dependent students with Stafford/SLS loans was 6 percentage points in the first period (from 18 to 24 percent), and then 15 percentage points in the second period (from 24 to 39 percent). The average loan increased by $600 in the first period (from $2,100 to $2,700), and then by $1,000 in the second period (from $2,700 to $3,700). The increases in tuition were the same in both periods, but the increases in borrowing were much greater in the second period. Borrowing increases and tuition increases were not proportional, in part because there were more restrictions on participation in the loan programs during the first period than during the second one.

Over the 6-year period, the borrowing rates of full-time, full-year undergraduates at public 4-year institutions did not vary directly with tuition levels (figure E). The percentage of students borrowing was about the same at all levels of tuition in each of the 3 years. Borrowing rates of students increased to similar levels no matter what the level of tuition was.

A similar pattern is found among full-time, full-year undergraduates at private not-for-profit 4-year institutions. Average tuition was $8,900, $11,100, and $12,600 in the 3 years, respectively. While the tuition increase was greater between 1989–90 and 1992–93 than between 1992–93 and 1995–96, borrowing rates and average loan amounts were greater in the second period. There was also no direct relationship between borrowing rates and the level of tuition within each academic year. With some exceptions, borrowing rates increased to similar levels whether tuition was relatively low or relatively high.

The annual increases in the size of loans resulted in much higher total cumulative amounts for college seniors at both types of 4-year institutions. Between 1992–93 and 1995–96, the cumulative loan amount for 4th- and 5th-year undergraduates at public 4-year institutions grew from $7,000 to $11,000. At private not-for-profit 4-year institutions, the cumulative loan amount for seniors grew from $9,000 in 1992–93 to $13,100 in 1995–96.

Figure E.—Percentage of full-time, full-year undergraduates receiving Stafford loans or Supplemental Loans to Students (SLS), by tuition and fees charged in 1989–90, 1992–93, and 1995–96: Public 4-year institutions



*Tuition amounts for students in public 4-year institutions include out-of-state students who are usually charged higher tuition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

Summary

The changes in the loan programs and federal need analysis resulting from the 1992 Reauthorization allowed for increased participation of middle- and higher income dependent students in the Stafford loan program and for borrowing larger amounts. Undergraduates who were independent students took out larger loans, primarily because of a large increase in the proportion of borrowers who obtained unsubsidized loans in addition to their subsidized ones. The increase in unsubsidized loans to independent students was facilitated when the separate SLS program was replaced by unsubsidized loans available through the Stafford program in the same loan application process.

The level of student borrowing at the different types of institutions was directly related to the average level of tuition (with the exception of the private for-profit institutions). However, the relationship between tuition levels and borrowing within types of institutions was not as direct as these general patterns suggest. Within both public and private not-for-profit 4-year institutions, the borrowing rates of full-time, full-year undergraduates did not vary directly with tuition levels. In fact, over the 6-year period, with a few exceptions, borrowing rates increased to similar levels over time at nearly all tuition levels.

Reference

The College Board. (1998). *Trends in Student Aid 1998.* Washington, DC: Author.

Data sources: The NCES 1989–90, 1992–93, and 1995–96 National Postsecondary Student Aid Study (NPSAS:1990, NPSAS:1993, and NPSAS:1996).

For technical information, see the complete report:

Berkner, L. (1999). *Trends in Undergraduate Borrowing: Federal Student Loans in 1989–90, 1992–93, and 1995–96* (NCES 2000–151).

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Salary, Promotion, and Tenure Status of Minority and Women Faculty in U.S. Colleges and Universities

Michael T. Nettles, Laura W. Perna, and Ellen M. Bradburn

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Study of Postsecondary Faculty (NSOPF).

This report examines differences among postsecondary faculty members by gender and by race/ethnicity. Comparisons were made on several human capital (e.g., education and experience) and structural (e.g., academic discipline and institution type) variables as well as faculty outcomes (salary, tenure, and rank). A multivariate analysis of factors associated with salary was also conducted. Male faculty in this group were compared to female faculty, and comparisons were also made among four racial/ethnic groups: black, non-Hispanic; white, non-Hispanic; Hispanic; and Asian/Pacific Islander.

Generated from the 1993 National Study of Postsecondary Faculty (NSOPF:1993), the analyses presented in this report are based on U.S. citizens with faculty status at 2- and 4-year (and above) institutions who indicated that their primary activity in the fall of 1992 was teaching. Most analyses were also restricted to full-time faculty members. NSOPF:1993 is the second in a series of surveys on faculty conducted by the U.S. Department of Education, National Center for Education Statistics (NCES).

Differences Between Male and Female Faculty Members

Differences in faculty outcomes by gender

There were several differences between male and female faculty members in the levels of faculty outcomes such as salary, tenure, and rank. Female full-time faculty averaged lower salaries than male faculty by about $10,000 in the fall of 1992 (figure 1). They were also less likely to be tenured (42 vs. 66 percent) or to be full professors (15 vs. 39 percent).

Differences in human capital by gender

Age, education, and experience also differed by gender among these postsecondary faculty. Female full-time faculty were younger than their male counterparts and had lower educational levels and less experience. For example, about 40 percent of female faculty, compared to 58 percent of male faculty, held a doctorate (figure 2), and female faculty averaged 3 fewer years in their current rank than male faculty did.

Male and female faculty also engaged in different professional activities. Female full-time faculty spent larger shares of their time in teaching or service activities, and smaller proportions in research or administrative activities, than male faculty. For example, about 51 percent of female full-time faculty spent at least three-quarters of their time in teaching activities, compared to 37 percent of men; male faculty averaged 15 percent of their time on research activities, compared to 10 percent for female faculty.

Difference in structural factors by gender

Male and female faculty also worked in different types of institutions and fields. Among full-time faculty, women were more likely than men to work in 2-year institutions (33 vs. 23 percent), while men were more likely than women to work in research universities (20 vs. 14 percent). Among full-time faculty, men were at least twice as likely as women to teach engineering (6 vs. 1 percent), history and philosophy (6 vs. 3 percent), physical sciences (7 vs. 2 percent), and occupational programs (5 vs. 2 percent).

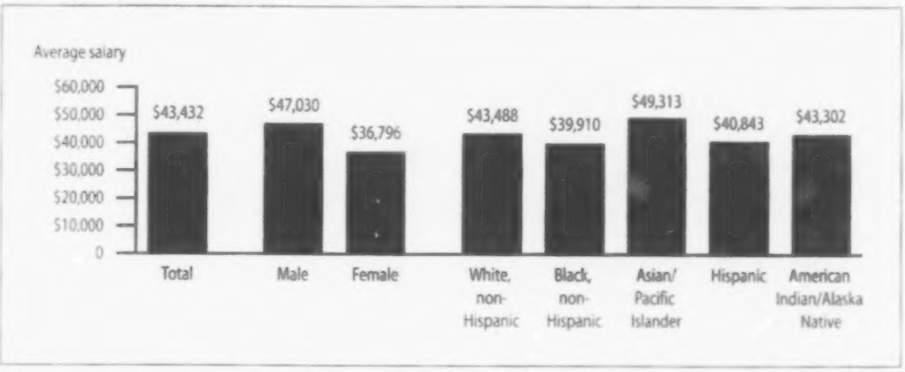
Multivariate analysis of salary differences by gender

Many of the human capital and structural characteristics, however, may themselves be associated with faculty outcomes such as salary, so the male-female differences in salary may be accounted for by controlling for such factors. This possibility was explored with a multivariate regression analysis of the relationship of salary to a variety of human capital and structural factors; even when comparing male and female faculty with similar characteristics, however, female full-time faculty had lower average base salaries than their male counterparts.

Differences Among Racial/Ethnic Groups

The report also considered differences among racial/ethnic groups in faculty outcomes and human capital and structural factors. In some cases, these results are easy to summarize. In faculty outcomes, for example, white faculty generally had higher salaries and were more likely to be tenured and to be full professors than black faculty. For other areas, the racial/ethnic differences are more complex and do not demonstrate consistent patterns.

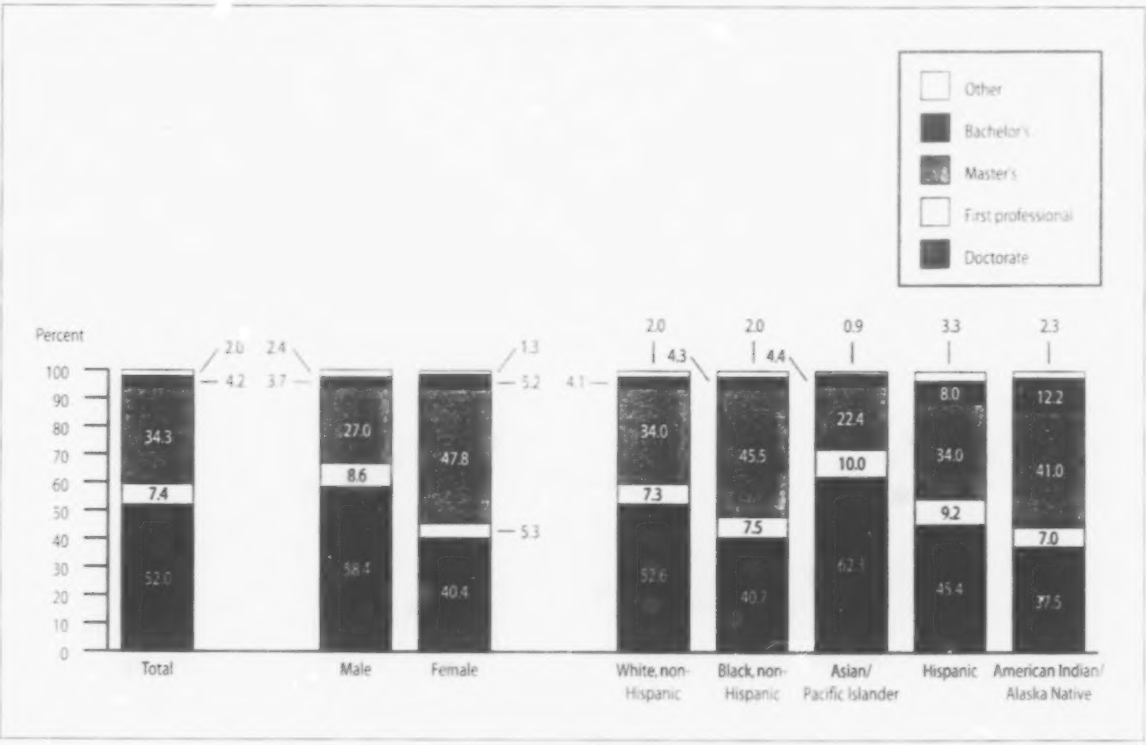
Figure 1.—Average base salary of full-time faculty whose primary responsibility is teaching, by gender and race/ethnicity: Fall 1992



NOTE: Includes U.S. citizens only. Also excluded are respondents with base salaries greater than $400,000.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Figure 2.—Percentage distribution of full-time faculty whose primary responsibility is teaching according to highest degree attained, by gender and race/ethnicity: Fall 1992



NOTE: Includes U.S. citizens only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Differences in faculty outcomes by race/ethnicity

The first area of inquiry was faculty outcomes such as salary, tenure, and rank. Black, non-Hispanic full-time faculty were less likely than white, non-Hispanic faculty members to have higher salaries (figure 1), tenure, and full professorships. For example, 48 percent of black faculty members compared to 58 percent of white faculty members were tenured in the fall of 1992. Asian/Pacific Islander faculty generally had higher salaries and were more likely to be tenured and to be full professors than white, black, or Hispanic faculty. Hispanic faculty did not differ significantly from either whites or blacks on these outcomes.

Differences in human capital by race/ethnicity

In terms of human capital characteristics, black full-time faculty differed from white faculty in level of education in the fall of 1992. For example, 41 percent of blacks had earned doctorates, compared with 53 percent of whites (figure 2). White and Asian faculty had more experience than black faculty, and there was some evidence that whites and Asians were also more experienced than their Hispanic counterparts. For example, black and Hispanic full-time faculty were younger, on average, than white and Asian/Pacific Islander full-time faculty. The average age for black and Hispanic faculty was about 47 years old, compared with 49 for white and 50 for Asian/Pacific Islander faculty.

Among work activities, there were more idiosyncratic differences among racial/ethnic groups. There was some evidence that the teaching load for Asian faculty was different from that of Hispanic faculty, while Asian faculty differed from black faculty in the types of research pursued and the time spent in such activities. Asian/Pacific Islander (78 percent) and non-Hispanic white (64 percent) full-time faculty were more likely than black, non-Hispanic faculty members (51 percent) to be engaged in research or similar scholarly activity, although the type of activity pursued did not, in general, vary consistently across racial/ethnic groups. Asian and black faculty were more likely to have no administration time than white faculty, while white and Hispanic faculty averaged more time on service activities than Asian respondents.

Difference in structural factors by race/ethnicity

In terms of structural factors, there were some differences as well. For example, white faculty (9 percent) were more likely than Asian or Hispanic faculty (5 percent each) to be found in liberal arts colleges, while Hispanic faculty (42 percent) were more likely than white or Asian faculty (26 and 22 percent, respectively) to teach in 2-year colleges. Otherwise, the distribution of faculty across institution types generally did not vary by race/ethnicity.

Asian/Pacific Islander faculty were more likely than white, black, or Hispanic faculty to work in engineering or in math/computer science. For example, 16 percent of Asian faculty were in engineering, compared to no more than 6 percent of each of the other groups. Non-Hispanic black faculty were more likely than white faculty, who in turn were more likely than Asian faculty, to be employed in education (12 percent for blacks vs. 7 percent for whites and 3 percent for Asians).

Black full-time faculty were more likely than those from any other racial/ethnic group to work in the Southeast, and Hispanic faculty were more likely than the other three racial/ethnic groups to work in the Southwest. Hispanic and Asian faculty were at least twice as likely as non-Hispanic blacks and whites to work in the far western region of the United States (27 percent each for Hispanic and Asian faculty compared with 8 percent and 13 percent, respectively, for black and white faculty).

Multivariate analysis of salary differences by race/ethnicity

When comparing faculty members with similar human capital and structural characteristics, as well as similar tenure and rank, faculty of different racial/ethnic groups received similar salaries. However, as shown above, many differences do exist among faculty of different racial/ethnic groups in such background and structural characteristics.

Data source: The NCES 1993 National Study of Postsecondary Faculty (NSOPF:1993).

For technical information, see the complete report:

Nettles, M.T., Perna, L.W., and Bradburn, E.M. (2000). *Salary, Promotion, and Tenure Status of Minority and Women Faculty in U.S. Colleges and Universities* (NCES 2000–173).

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To obtain the complete report (NCES 2000–173), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Instructional Faculty and Staff in Public 2-Year Colleges

James C. Palmer

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Study of Postsecondary Faculty (NSOPF).

Introduction

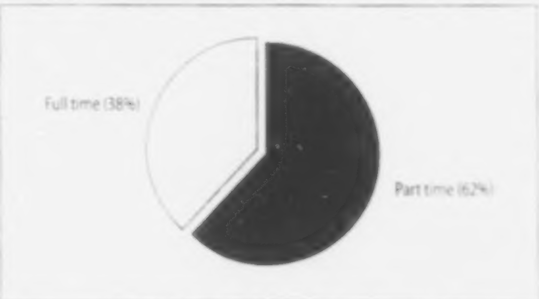
Results from the 1993 National Study of Postsecondary Faculty (NSOPF:1993) reveal that there were approximately 275,000 instructional faculty and staff members at the nation's public 2-year colleges during the fall of 1992. This group represents 30 percent of the total instructional faculty and staff employed by colleges and universities nationwide. Teaching was the primary responsibility of most instructional faculty and staff in public 2-year colleges. Of the 255,000 instructional faculty and staff in public 2-year colleges whose primary responsibility was teaching for credit during the fall of 1992, 38 percent were employed full time and 62 percent were employed part time (figure A).

Previous NSOPF analyses have compared faculty and staff in the public 2-year sector with faculty and staff in other sectors. This report, however, uses selected findings from NSOPF:1993 to examine differences between subgroups of faculty and staff *within* the public 2-year sector. It compares the backgrounds, teaching methods, and career lives of instructional faculty and staff who vary in terms of age, years of experience in their current jobs, and primary teaching discipline. These comparisons show how those who are relatively new entrants to the teaching ranks at public 2-year colleges may differ from their older and more experienced colleagues. They also describe the instructional faculty and staff at public 2-year colleges as members of disciplinary subcultures.

Primary teaching discipline was included as a key point of comparison, because prior studies have occasionally revealed differences across disciplines in the academic work of community college faculty members. The decision to examine differences by age reflects contemporary concern about the impending turnover of a gradually aging faculty. As for institutional impact on faculty work, few published studies have examined differences between community college faculty members with varying years of experience on the job. Yet the question of institutional influence on instructional faculty and staff is a contentious one. Many community college leaders have long asserted that strong faculty ties to the discipline must be discouraged in deference to the institution's student-focused mission. This report provides a first national look at diversity within the public 2-year sector, offering baseline data that may be used as points of comparison with data from future cycles of NSOPF.

In recognition of the different professional ties that full- and part-time faculty may have with the community college enterprise, separate profiles are developed for full- and part-time instructional faculty and staff for whom teaching in

Figure A.—Percentage distribution of instructional faculty and staff whose primary responsibility was teaching for credit, by employment status in public 2-year colleges: Fall 1992



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

credit classes was the primary responsibility during the fall of 1992. Each profile looks at several characteristics of instructional faculty and staff in public 2-year colleges, including their demographic characteristics, their education and employment histories, the percentages holding jobs outside of their colleges, and the type of work those outside jobs entail. The profiles include measures of instructional workload and insights into the approaches instructional faculty and staff use to teach classes and assess student work. (Of particular interest here is the extent to which instructional faculty and staff involve students in classroom activities, as opposed to primarily lecturing, and the extent to which they require written assignments.) Selected attitudes about the profession also are examined, as are self-perceptions about the likelihood of accepting another job.[3] Some of the findings are listed below.

Findings

On average, the full-time instructional faculty or staff members[4] at public community colleges worked just under 47 hours per week, taught 4.5 credit classes, for a total of 13 classroom credit hours, spent 17 hours per week teaching credit classes, and instructed a total of 103 students in credit classes.

Twenty-eight percent of full-time instructional faculty and staff reported at least some type of employment outside of their colleges. Of those who had outside employment, 26 percent reported that teaching was the primary activity in those jobs, and 18 percent indicated that they were employed at other postsecondary institutions. Surprisingly, 13 percent of those with outside employment characterized their second jobs as full time.

On average, the part-time instructional faculty and staff members at public community colleges worked a total of 33 hours per week, of which 11 were for paid activities at the college. In addition, part-time instructional faculty and staff at public 2-year colleges taught an average of 2.1 credit classes, for a total of 5.8 classroom credit hours; spent 8 hours per week teaching credit classes; and instructed a total of 42 students in credit classes.

Most of the part-time instructional faculty and staff (79 percent) held other jobs outside of their colleges. When asked about the primary responsibility of their outside work, 38 percent reported that their outside job entailed teaching. Eighteen percent of those with outside employment indicated that they worked at another postsecondary institution. Others were self-employed (18 percent); or worked in hospitals, foundations, or government agencies (22 percent); for-profit businesses (16 percent); or "other" agencies (26 percent). About two-thirds of those with outside employment indicated that their other employment entailed full-time work.

Characteristics of instructional faculty and staff in this report were looked at by age (those under 35 vs. those between the ages of 55 and 64), by years of experience in current teaching position (under 10 years vs. 20 or more years), and by primary teaching field. Seven disciplinary groups were used to compare instructional faculty and staff by primary teaching field: (1) business, law, and communications; (2) health sciences; (3) humanities; (4) natural sciences and engineering; (5) social sciences and education; (6) vocational training; and (7) all other areas. Figure B shows the percentage distribution of instructional faculty and staff by each of these three characteristics.

Differences by age

There were two major differences between instructional faculty and staff at public 2-year colleges who were under the age of 35 and those who were between the ages of 55 and 64 in the fall of 1992. The first is clear: the two groups represent individuals who were at different stages of their careers. Younger teachers are still developing careers that their older colleagues have long since established. This emerges in the findings that, regardless of employment status (full time or part time), younger teachers were more likely to hold only a baccalaureate or less as the highest earned credential and more likely to accept the possibility of moving on to another full-time job.

The second major difference lies in the employment histories of the two groups. For example, among full-time faculty, the younger teachers were more likely than their older colleagues to indicate that they had held other jobs since earning their highest credential (figure C). Among part-time faculty, younger teachers were more likely to indicate that they accepted part-time work because full-time work was unavailable.

The proportion of women among full-time instructional faculty and staff under the age of 35 was greater than the

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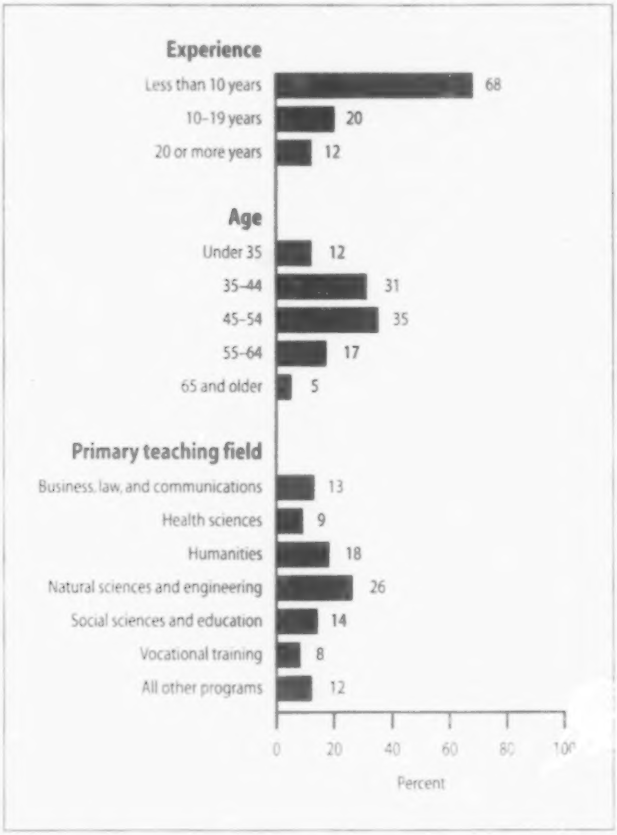
[3] The specific variables used are described in the Technical Notes to the complete report. Each variable should be considered a proxy measure for the larger construct it represents.

[4] The terms "faculty," "instructional faculty and staff," and "instructional faculty and staff whose primary responsibility was teaching" are used interchangeably in this report.

Figure B.—Percentage distribution of instructional faculty and staff in public 2-year colleges, by years of experience on current job, age, and primary teaching field: Fall 1992



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

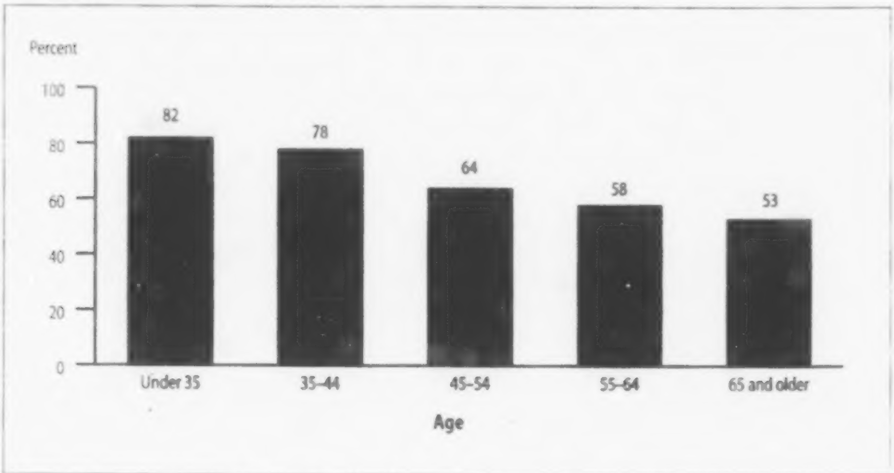
proportion of women among those between the ages of 55 and 64 (48 vs. 31 percent). But this was not the case for part-time instructional faculty and staff. And, regardless of employment status (full time vs. part time), instructional faculty and staff in the two age groups did not differ in terms of race/ethnicity, workload, instructional methods used, engagement in nonteaching professional activities, perceptions of career opportunities for junior faculty, and willingness to choose an academic career were they to "do it all over again."

Differences by years in current job

Some of the differences between those who had held their current jobs for less than 10 years and those who had held their jobs for 20 or more years mirror the differences between younger and older colleagues. For example, instructional faculty and staff who had held their jobs for 10 or fewer years were *less* likely than those who had been on the job for 20 or more years to hold a postbaccalaureate degree (table A). In addition, they were more likely to accept the possibility of seeking other employment. These differences apply to both full- and part-time faculty.

Analyses of responses from the full-time instructional faculty and staff revealed differences that did not emerge in the age comparisons. In contrast to full-time faculty who had held their jobs for less than 10 years, those with 20 or more years of experience in the same full-time job worked fewer hours per week but taught, on average, greater numbers of students. Full-time teachers who were in the same job for 20 or more years were also less likely to have required student presentations, to have used computer-assisted instruction, or to have required students to evaluate each other's work.

Figure C.—Percentage of full-time instructional faculty and staff in public 2-year colleges who have held other jobs since earning their highest credential, by age: Fall 1992



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Table A.—Number and percentage distribution of instructional faculty and staff at public 2-year colleges, by highest educational credential attained, employment status, and years of experience on current job: Fall 1992

Employment status and years of experience on current job	Instructional faculty and staff* (in thousands)	Highest credential attained (percent)		
		Bachelor's or less*	Master's degree	Ph.D. or first professional
Total full time	**94.9**	**17.5**	**63.7**	**18.8**
Years of experience on current job				
Less than 10 years	46.0	21.6	60.8	17.6
10–19 years	25.8	19.2	63.6	17.3
20 or more years	23.2	7.5	69.6	22.9
Total part time	**153.1**	**33.3**	**53.3**	**13.4**
Years of experience on current job				
Less than 10 years	122.2	34.6	52.6	12.9
10–19 years	24.5	29.7	55.1	15.2
20 or more years	6.4	22.4	60.0	17.6

*Includes only instructional faculty and staff who held a postsecondary credential.

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Table B.—Number and percentage of instructional faculty and staff who taught credit classes at public 2-year colleges, by their use of various instructional methods in their classes, employment status, and primary teaching field: Fall 1992

Employment status and primary teaching field	Instructional faculty and staff* (in thousands)	Percent using method in some or all classes		
		Essay mid-terms or finals	Term/ research papers	Student evaluations
Total full time	**94.9**	**53.5**	**49.3**	**38.1**
Primary teaching field				
Business, law, and communications	11.1	57.4	51.3	34.0
Health sciences	12.6	27.5	44.8	34.2
Humanities	16.9	83.2	68.3	63.1
Natural sciences and engineering	23.1	40.7	32.1	17.8
Social sciences and education	12.2	64.7	62.2	37.7
Vocational training	8.8	41.7	34.5	34.2
All other programs	9.5	54.3	54.2	54.2
Total part time	**154.9**	**47.0**	**40.9**	**34.7**
Primary teaching field				
Business, law, and communications	22.4	46.3	39.5	31.2
Health sciences	9.8	32.1	44.2	28.0
Humanities	28.4	73.1	57.7	62.7
Natural sciences and engineering	40.7	29.3	20.4	16.5
Social sciences and education	20.9	58.1	59.6	32.6
Vocational training	11.9	40.3	34.9	30.9
All other programs	19.1	44.0	44.8	45.9

*Includes only instructional faculty and staff who taught credit classes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Differences by primary teaching field

Comparisons by primary teaching field suggest the presence of disciplinary subcultures within the community college professoriate. One contrast can be seen in the differing educational and employment backgrounds of instructional faculty and staff in the vocational training category and in the humanities. Regardless of employment status (full time vs. part time), vocational teachers were less likely than their colleagues in the humanities to hold a graduate degree or to report that their most recent previous jobs entailed teaching at a postsecondary institution. These two groups, then, appear to represent opposite ends of a disciplinary continuum ranging from those with relatively strong professional ties to academe to those whose professional orientations are often forged in employment arenas outside of academe.

Teachers in the humanities also stood out in terms of approaches to instruction. Regardless of employment status, they were more likely than teachers in the other instructional groups to have used essay examinations, to have assigned term papers,[3] or to have required students to evaluate each other's work (table B). They also were more likely to have employed the seminar method or to have used discussion, role-playing, group projects, or cooperative learning techniques as the primary instructional method.

In contrast, instructional faculty and staff in the natural sciences were more likely than colleagues in the other disciplinary categories to have employed lecture as the primary instructional technique. Full-time instructional faculty and staff teaching the natural sciences were less likely than their full-time colleagues in any of the other categories (except vocational training) to have used student presentations in all classes and more likely to have reported that they used student presentations in no classes. They also were more likely than full-time faculty in any of the other categories to indicate that they never ask students to evaluate each other's work.

Conclusion

The survey data reported here point to the slowly changing nature of the community college enterprise.[4] The emergence of a new generation of teachers replacing those who began their careers in the 1960s and early 1970s portends no watershed change in teaching method. In contrast to comparisons between instructional faculty and staff teaching different subject areas, relatively few relationships emerged between length of time in the current job and instructional method. It was the discipline that appeared to be related to instructional method, especially in terms of literacy (as reflected in the assignment of term papers or the use of written examinations) and student involvement in classroom instruction (as reflected in the use of teacher lectures).

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[3] Among part-time teachers, those in social sciences and education were as likely as those in the humanities to have assigned term papers.

[4] Time series data would offer much more reliable assessments of the changing nature of the community college enterprise. Absent those data, however, years of experience on the job and age can serve as proxies. In addition, the data presented in this report will serve as a base of comparison for data collected in NSOPF:1999.

Data source: The NCES 1993 National Study of Postsecondary Faculty (NSOPF:1993).

For technical information, see

Selfa, L.A., Suter, N., Myers, S., Koch, S., Johnson, R.A., Zahs, D.A., Kuhr, B.D., and Abraham, S.Y. (1997). *1993 National Study of Postsecondary Faculty (NSOPF:1993) Methodology Report* (NCES 97–467).

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Instructional Faculty and Staff in Higher Education Institutions Who Taught Classes to Undergraduates: Fall 1992

Xianglei Chen

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Study of Postsecondary Faculty (NSOPF).

As college costs have escalated in recent years, concern about the quality of undergraduate education has intensified. Some concerns focus on what is being taught (e.g., Bloom 1987), while others emphasize who is doing the teaching (e.g., Huber 1992). The latter concern, which is the focus of this report, has become prominent because of the widespread perception that undergraduate students are increasingly taught by part-time, junior, or nontenure-track faculty and that senior and experienced professors care little about undergraduate education (Boyer Commission 1998). Despite the considerable attention that both the higher education community and the media have recently paid to this concern, little information at the national level has been obtained regarding who teaches undergraduates in U.S. higher education institutions and what their teaching loads are.

Using data from the 1993 National Study of Postsecondary Faculty (NSOPF:1993), the purpose of this study was to determine the extent to which instructional faculty and staff of higher education institutions are involved in undergraduate teaching.[1] Specifically, it addressed the following two questions: (1) Who teaches undergraduates in the classroom? and (2) How much do they teach? The findings are based on a nationally representative sample of instructional faculty and staff who provided classroom instruction for credit to undergraduates in the fall of 1992.[2]

Instructional Faculty and Staff Who Taught Classes for Credit to Undergraduates

In the fall of 1992, a vast majority (86 percent) of instructional faculty and staff employed in higher education institutions provided classroom instruction to undergraduates for credit (figure A). Their high involvement in undergraduate teaching not only was evident in 2-year institutions, where all instructional faculty and staff reported teaching classes for credit to undergraduates, but also was apparent in 4-year institutions. For example, 89 percent of instructional faculty and staff at 4-year nondoctoral institutions and 67 percent at 4-year doctoral institutions reported teaching at least one class for credit to undergraduates in fall 1992. Because there was no variation among instructional faculty and staff at 2-year institutions regarding who taught undergraduate classes, the analysis in this section excluded these faculty members and focused on only those at 4-year institutions.

While nearly four in five (79 percent) instructional faculty and staff at 4-year institutions reported teaching undergraduates in the classroom in 1992, relatively fewer taught only these students, especially only lower division students (i.e., freshmen and sophomores) (table A). For example, 66 percent of instructional faculty and staff at 4-year institutions reported teaching only undergraduate classes. Of those who reported teaching at least one undergraduate class, one in four (25 percent) reported that all of the classes they taught were at the lower division level.[3] Thus, while most instructional faculty and staff at 4-year institutions who had teaching responsibilities were involved in undergraduate teaching, relatively fewer of them devoted their teaching entirely to undergraduates, particularly at the lower division level.

Who taught undergraduates varied considerably among instructional faculty and staff at 4-year institutions. In general, faculty who were employed part time, were female, held a lower academic rank such as instructor or lecturer, worked in a nontenure-track position, had a highest degree below a doctoral or professional degree, and earned a lower salary from their institution were more likely than their counterparts to teach undergraduates, particularly *only* undergraduates or *only* lower division students (table A). The multivariate analysis on who was likely to teach only undergraduate classes further revealed that although the

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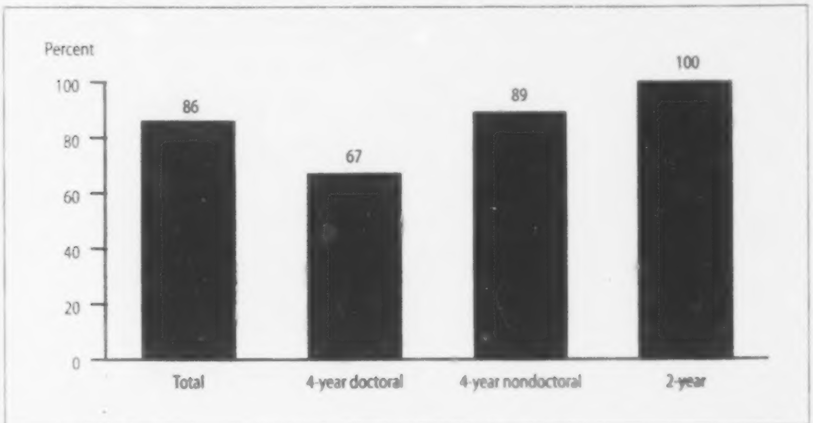
[1] Using graduate teaching assistants for undergraduate instruction has become increasingly common at U.S. higher education institutions and has recently received much attention from the media (Wilson 1999). Unfortunately, the data used in this report from NSOPF:1993, which excludes teaching assistants, cannot address this issue.

[2] NSOPF:1993 is a study of faculty and instructional staff. In the fall of 1992, there were approximately 1,034,000 faculty and instructional staff employed in U.S. higher education institutions. Of these, about 817,000 reported teaching one or more classes for credit during the fall. These individuals became the base sample of this report, from which those who taught undergraduate classes for credit were identified. Excluded from the sample were faculty and staff who did not teach any classes during the fall (i.e., those engaged exclusively in research, administration, or public service), those who taught only independent study or one-on-one classes, or those who supervised undergraduate or graduate thesis or dissertation work without teaching any class for credit.

[3] Or about 20 percent of instructional faculty and staff who had undergraduate classroom teaching duties reported teaching only lower division classes (25 x 79/100 = 20 percent).

Figure A.—Percentage of instructional faculty and staff in higher education institutions who taught at least one class for credit to undergraduates, by type of institution: Fall 1992



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

Table A.—**Percentage of instructional faculty and staff in all 4-year institutions who taught at least one class for credit to undergraduates, percentage who taught classes for credit to only undergraduates, and of those who taught any undergraduate classes, percentage who taught only lower division classes, by selected characteristics of faculty and staff: Fall 1992**

	Percentage who taught at least one class for credit to undergraduates[1]	Percentage who taught classes for credit to only undergraduates	Of those who taught any undergraduate classes, percentage who taught only lower division classes
Total	78.9	65.8	24.5
Employment status			
Part time	78.6	75.1	38.4
Full time	79.0	61.3	17.9
Gender[2]			
Female	81.8	67.4	20.4
Male	77.9	58.8	16.8
Academic rank[2]			
Instructor or lecturer	89.3	83.4	36.4
Assistant professor	82.2	65.1	16.5
Associate professor	77.6	58.0	14.6
Full professor	74.6	54.1	14.7
Tenure status[2]			
No tenure system	80.3	71.0	28.0
Not on tenure track	79.9	71.1	29.5
On tenure track	80.7	61.0	15.4
Tenured	77.9	58.1	15.2
Highest degree earned[2]			
Degree below doctoral or professional degree	94.7	84.8	27.1
Doctoral or professional degree	74.5	54.5	14.6
Basic salary[2]			
Below $35,000	92.0	80.3	23.9
$35,000–$50,000	84.3	64.0	15.5
Above $50,000	64.0	44.4	15.0

[1] A maximum of five classes could be reported by respondents.

[2] Part-time instructional faculty and staff were excluded.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

differences between part-time and full-time faculty and between male and female faculty were no longer found when other factors were taken into consideration,[4] academic rank and highest degree earned remained significant factors in determining who teaches undergraduates exclusively (table B). Regardless of the type of 4-year institution, the faculty members' gender, race/ethnicity, age, teaching field, or employment status, those faculty or staff who were instructors, lecturers, and assistant professors were more likely than full professors to teach only undergraduate classes. Faculty who had a highest degree below a doctoral or professional degree were also more likely to teach undergraduates only than those with a doctoral or professional degree.

While senior faculty (i.e., full or associate professors, or tenured faculty) were less likely to provide classroom instruction to undergraduates than were junior faculty (i.e., instructors, lecturers, assistant professors, or faculty working in a nontenure-track position), a majority of senior faculty were, in fact, involved in undergraduate teaching. For example, at 4-year doctoral institutions, 64 percent of full-time associate professors reported teaching at least one class for credit to undergraduates, as did 61 percent of full-time full professors and 65 percent of full-time tenured faculty (figure B). Moreover, between 38 and 41 percent of these faculty members said that all of the classes they taught were targeted at the undergraduate level. These results seem inconsistent with the perception that at research and doctoral universities, few senior faculty members are involved in undergraduate teaching.

Undergraduate Teaching Loads of Instructional Faculty and Staff Who Taught One or More Classes for Credit to Undergraduates

In the fall of 1992, instructional faculty and staff[5] in all types of higher education institutions (including 2-year institutions) taught about 2.3 undergraduate classes with a

Table B.—Unadjusted and adjusted percentages of instructional faculty and staff in all 4-year institutions who taught classes for credit to only undergraduates, by gender, employment status, academic rank, and highest degree earned: Fall 1992

	Unadjusted percentage	Adjusted percentage[2]
Total	65.8	65.8
Gender		
Female	72.9*	68.0
Male[1]	*62.0*	*64.6*
Employment status		
Part time	75.1*	64.2
Full time[1]	*61.3*	*66.5*
Academic rank		
Other ranks or not applicable	73.8*	65.9
Instructor or lecturer	82.7*	73.3*
Assistant professor	65.7*	69.0*
Associate professor	57.9	62.7
Full professor[1]	*53.9*	*58.1*
Highest degree earned		
Degree below doctoral or professional degree	85.2*	78.5*
Doctoral or professional degree[1]	*54.8*	*58.6*

*p<.05

[1] The italicized group is the comparison group.

[2] In addition to adjusting for the variables listed in the table, the percentages were also adjusted for type of institution, faculty's age, race/ethnicity, and principal field of teaching.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

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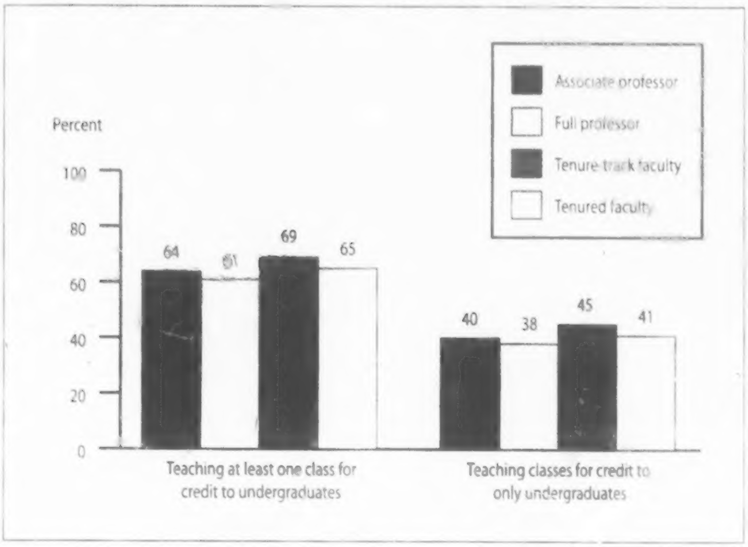
[4] Tenure status was excluded from the multivariate regression model because of its high correlation with academic rank.

[5] This analysis was restricted to instructional faculty and staff who reported teaching one or more classes for credit to undergraduates. Thus, those who taught classes for credit to graduate students only were excluded.

Figure B.—Percentage of full-time instructional faculty and staff in 4-year doctoral institutions who taught at least one class for credit to undergraduates, and percentage who taught classes to only undergraduates, by academic rank and tenure status: Fall 1992



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

total of 8 credit hours (table C). In each undergraduate class taught, they had about 30 students. Overall, they spent 10 hours per week in the classroom teaching undergraduates and had a total of 272 undergraduate student contact hours per week.

Undergraduate teaching loads were not uniformly distributed across institutions. For example, full-time instructional faculty and staff at 4-year doctoral institutions had lighter undergraduate teaching loads than their full-time colleagues at 4-year nondoctoral institutions, who, in turn, had lighter undergraduate teaching loads than those who taught full time at 2-year institutions (table C). In addition, with a few exceptions, full-time senior faculty (i.e., full or associate professors, or tenured faculty) tended to teach larger but fewer undergraduate classes, whereas full-time junior faculty (i.e., instructors, lecturers, or assistant professors, or those working in a nontenure-track position) taught smaller but more undergraduate classes. Full-time senior faculty also spent fewer hours each week teaching undergraduates in class than their junior counterparts. The combination of smaller class sizes with more classroom hours (or vice versa) resulted in full-time senior and junior faculty members having similar undergraduate student contact hours.

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Data source: The NCES 1993 National Study of Postsecondary Faculty (NSOPF:1993).

For technical information, see

Selfa, L.A., Suter, N., Myers, S., Koch, S., Johnson, R.A., Zahs, D.A., Kuhr, B.D., and Abraham, S.Y. (1997). *1993 National Study of Postsecondary Faculty (NSOPF:1993) Methodology Report* (NCES 97–467).

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Table C.—Undergraduate teaching loads of instructional faculty and staff in higher education institutions who taught one or more classes for credit to undergraduates, by type of institution, academic rank, and tenure status: Fall 1992

	Number of undergraduate classes taught	Number of undergraduate classroom credit hours	Hours per week teaching undergraduates in the classroom	Average undergraduate class size	Total undergraduate student contact hours[1]
Total[2]	2.3	7.6	9.5	30.4	272.4
For full-time only					
4-year doctoral	1.9	6.2	7.4	46.8	311.3
Instructor or lecturer	2.4	8.0	10.1	38.7	398.0
Assistant professor	1.9	6.3	7.7	43.6	289.1
Associate professor	2.0	6.3	7.6	47.0	344.2
Full professor	1.7	5.5	6.2	51.9	282.7
No tenure system	2.3	7.2	11.0	32.3	478.4
Not on tenure track	2.3	7.6	9.8	45.0	378.4
On tenure track	1.9	6.1	7.3	43.8	284.9
Tenured	1.8	5.8	6.7	49.5	297.2
4-year nondoctoral	2.9	9.1	10.8	29.3	301.4
Instructor or lecturer	3.0	9.3	12.2	30.0	342.2
Assistant professor	3.0	9.5	11.2	28.7	304.2
Associate professor	2.9	9.1	10.5	29.2	292.2
Full professor	2.8	8.8	10.2	30.8	299.9
No tenure system	3.1	9.7	12.4	23.6	288.9
Not on tenure track	2.8	8.6	10.4	29.6	309.2
On tenure track	2.9	9.4	11.1	29.0	304.9
Tenured	2.8	9.0	10.3	30.6	300.7
2-year	3.5	12.3	16.2	28.9	453.0
Instructor or lecturer	3.6	12.9	18.3	27.2	474.5
Assistant professor	3.5	12.2	15.1	29.3	422.2
Associate professor	3.5	12.1	15.1	31.2	443.6
Full professor	3.7	11.9	14.8	31.6	476.5
No tenure system	3.4	12.2	16.1	26.6	431.5
Not on tenure track	3.0	10.0	14.7	26.5	369.3
On tenure track	3.6	12.6	17.5	28.7	476.5
Tenured	3.7	12.4	16.1	30.5	466.3

[1] This measure was constructed as follows. For each undergraduate class taught by faculty for credit, the number of hours per week taught in the class was multiplied by the number of students in the class. The products were then added together to obtain the total undergraduate student contact hours.

[2] The total includes both full-time and part-time instructional faculty and staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 National Study of Postsecondary Faculty (NSOPF:1993).

INTERNATIONAL STATISTICS

Elementary and Secondary Education: An International Perspective
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Elementary and Secondary Education: An International Perspective

Marianne Perie, Joel D. Sherman, Gabriele Phillips, and Matthew Riggan

This article was excerpted from the Highlights and chapters 1 and 6 of the Statistical Analysis Report of the same name. The sample survey data are primarily from the Organization for Economic Cooperation and Development (OECD) and NCES.

In recent years, public concern over the academic standing of U.S. students relative to students in other countries has increased dramatically. Much of this concern is due to the results of recent comparative reports that show U.S. students lagging behind their international classmates, especially in mathematics. International assessments of academic achievement provide important benchmarks to measure the progress of U.S. students, yet these studies often fail to explain the differences in achievement across countries. We are interested in not only how well U.S. students perform on achievement tests relative to their counterparts in other nations, but how different their education is in all respects. For example, we often hear people explain the low U.S. test scores by saying that the students in the United States represent a more diverse population: there are more different languages spoken in the United States, and we have higher poverty rates than other major industrialized nations. But how much truth is in this type of statement?

This report examines the elementary and secondary school system in the United States relative to the education systems in 11 other countries. This report also tries to connect selected educational inputs, such as teacher training and educational expenditures, to student outcomes, such as achievement and labor force participation.

Background

The need to compete effectively in the international marketplace has convinced U.S. business, economic, and political leaders of the importance of understanding the education systems of other industrialized nations. Studying how other countries educate their citizens provides insight into the competitiveness of those nations, as well as a benchmark for comparing our own education system.

Data published over the last decade have shown the United States to be lacking compared with other countries in some areas of school performance, particularly at the higher grade levels. While U.S. students perform reasonably well at the 4th-grade level, especially in reading, mathematics and science scores at the secondary school level have raised some concerns. Subsequent to several reports published in 1990, the nation's governors established the National Education Goals, which included two goals relevant to international competitiveness:

- "By the year 2000, United States students will be first in the world in mathematics and science achievement"; and
- "By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and

exercise the rights and responsibilities of citizenship" (National Education Goals Panel 1996, p. xvi).

Elementary and secondary education is the backbone of every nation's education system. These levels educate all persons from approximately age 6 through age 16, and for some students it is the only education they receive. Elementary and secondary education is available free of charge, and attendance is mandatory for all children of certain ages in each country discussed in this report.

To provide a broader perspective on these issues, the United States has participated in the Organization of Economic Cooperation and Development's (OECD) Indicators of National Education Systems (INES) Project and several major international assessments. The latter include the Third International Mathematics and Science Study (TIMSS), the Reading Literacy Study, and the International Adult Literacy Survey (IALS).

Purpose of This Report

This report attempts to analyze the role of elementary and secondary schools in preparing students either to continue their education or to enter the labor force and become productive, literate citizens. The story is told in four chapters, each focusing on a particular aspect of the elementary and secondary school system. Some trends and regional differences are examined within countries, and comparisons are made among 12 major industrialized nations.

Organization of the Report

The first two substantive chapters—*Student, Teacher, and Classroom Characteristics* and *Education Resources and Expenditures*—describe inputs into the elementary/secondary education system. The next two chapters—*Student Achievement* and *Labor Market and Other Outcomes*—analyze the outputs of elementary and secondary education systems. Finally, the conclusion attempts to draw links between the inputs described in chapters 2 and 3 and the outputs analyzed in chapters 4 and 5, and tries to answer the question "What matters?" Different contextual and financial inputs are correlated with achievement scores and education and labor market outcomes to determine whether certain factors appear related to these outcomes.

Data

The data analyzed in this report come primarily from the OECD and the National Center for Education Statistics (NCES). Countries selected for study in this report include the "Group of Seven" (G-7) countries as well as five other major industrialized nations. The G-7 countries are recognized as the world's major industrialized economies and include the United States, Canada, Japan, France, Germany, Italy, and the United Kingdom. These countries are relatively similar to one another in terms of economic development, and are primary commercial competitors with the United States. In addition to these countries, this report also compares the United States to Australia, Korea, Spain, Sweden, and Switzerland. These five countries were chosen for several reasons, such as the availability of data, variation in types of education systems, range of findings, and the size and economic competitiveness of these nations as compared to the United States.

Highlighted Results

Student, teacher, and classroom characteristics

Across most industrialized nations, the range of student/teacher ratios is wide at both the elementary and secondary levels. The United States has a higher-than-average student/teacher ratio than the other G-7 countries.

Schools in the United States allocated as much or more instructional time than most other countries in terms of overall hours of education, minutes of subject instruction in mathematics and science per week, and frequency of lessons.

The United States had a greater incidence of child poverty than its G-7 counterparts. One-fifth of all U.S. children lived in poverty after the effects of government taxes and transfers in 1991 were taken into account, compared with just over 13 percent in Canada, about 10 percent in the United Kingdom, and less than 7 percent in France.

The majority of elementary and secondary school teachers in the United States and in most other G-7 nations are female. However, in Germany and Japan, approximately three-quarters of secondary school teachers are male. While it takes 15 to 17 years of education to become a teacher in most nations, Germany and Japan maintain more extensive mentoring and training systems for new teachers than the United States.

Education resources and expenditures

The United States allocated 3.8 percent of gross domestic product (GDP) on elementary and secondary education, ranking below Sweden, Canada, Switzerland, France, and the United Kingdom, and above Australia, Italy, Spain, Japan, Germany, and Korea.

The United States had the highest per pupil expenditures of the G-7 countries in 1993, but was below all other countries except France and the United Kingdom in the percentage of current expenditures spent on staff compensation.

Student achievement

U.S. 9- and 13-year-olds performed at a level higher than most of their peers in other countries in reading, roughly the same in science, and lower in mathematics.

In eighth grade, boys and girls in the United States performed at roughly the same levels in mathematics and science. Internationally, where gender gaps did exist, they tended to favor boys in mathematics and science, and girls in reading.

Adults in the United States with only a high school diploma had weaker literacy skills than their counterparts in other countries studied. Approximately one-fifth of U.S. high school graduates with no postsecondary education were unable to perform beyond the most basic literacy tasks.

Labor market and other outcomes

The United States has one of the highest percentages of 25- to 64-year-olds who have completed secondary education.

At 35 percent, the enrollment rate of U.S. 18- to 21-year-olds in tertiary (higher) education surpassed that of all other countries but Canada, whose enrollment was 40 percent.

Over three-fourths of 25- to 64-year-olds with an upper secondary education participated in the labor force in all countries studied, with the United States falling in the low to middle range compared to other countries. Participation rates for those who had completed upper secondary education were much higher than for those who had not, particularly in the G-7 countries.

Upper secondary graduates have substantially higher earnings than those who did not complete a secondary education. The biggest earnings differential was seen in the United States, where those without a high school diploma earned about 64 percent of the salaries earned by those with a high school diploma.

Discussion

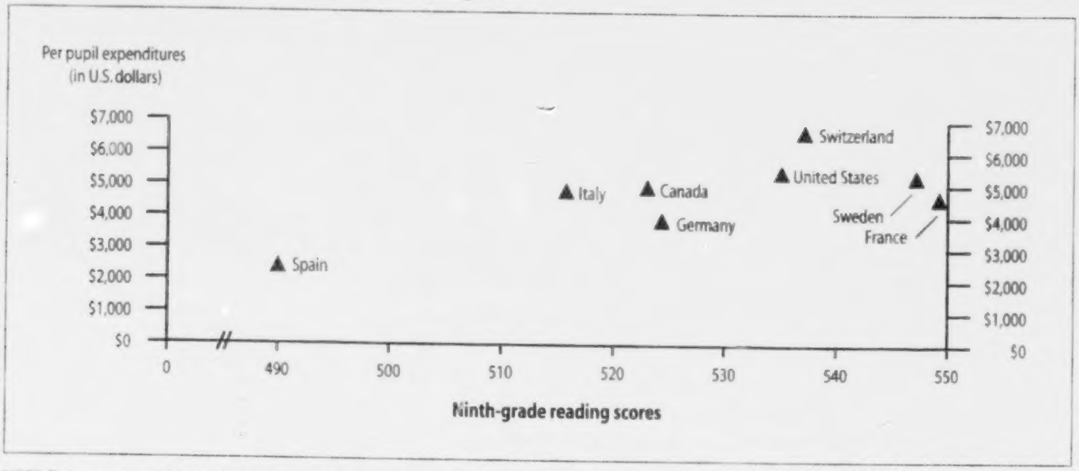
The final chapter of the report examines any connections between the various educational inputs and outputs by correlating countries' input measures described in chapters 2 and 3 of the report with output measures described in chapters 4 and 5. Overall, almost none of the measured classroom, teacher, student, or financial inputs correlated with any of the achievement measures—test scores in mathematics, science, or reading—with the exception of per pupil expenditures and ninth-grade reading scores.

Figure A shows the relationship between ninth-grade reading scores and per pupil expenditures. As seen in the figure, most countries are clustered toward the middle to high end of both measures. Because this report focuses on industrialized nations, the figure only depicts countries that have relatively high per pupil expenditures. No strong pattern emerges among those countries shown in the upper-right-hand corner of the figure. Spain, however, is an outlier, appearing by itself in the lower-left-hand corner. If Spain is removed, there is no significant correlation between ninth-grade reading scores and per pupil expenditures. No other input measure correlated with this or any of the other achievement measures.

Next, secondary school completion and tertiary enrollment rates are examined. Although no input measure correlated significantly with secondary school completion rates, one input did show a significant correlation with tertiary enrollment. Developed countries with high percentages of children in poverty, after accounting for government transfer programs, also had high percentages of 18- to 21-year-olds enrolled in tertiary education. The United States exemplifies this tendency by having high college enrollment rates and high poverty rates for children. Compared to some other developed countries, the percentage of U.S. children in poverty does not decrease as much after accounting for government transfer programs. The positive correlation of poverty and college enrollment may result from such factors as the interaction of government funding decisions, availability and perceived value of higher education, and the nature (e.g., public vs. private) of social service delivery programs.

Finally, input measures were correlated with the various labor market outcomes. One interesting relationship appeared between public expenditures and a labor market outcome. Figure B shows a positive relationship between expenditures as a percentage of GDP and labor force participation rates. In other words, the greater proportion of money a government spends on education relative to its wealth, the more students with an upper secondary education enter the labor force. For example, Sweden reported both the highest level of expenditures as a percentage of

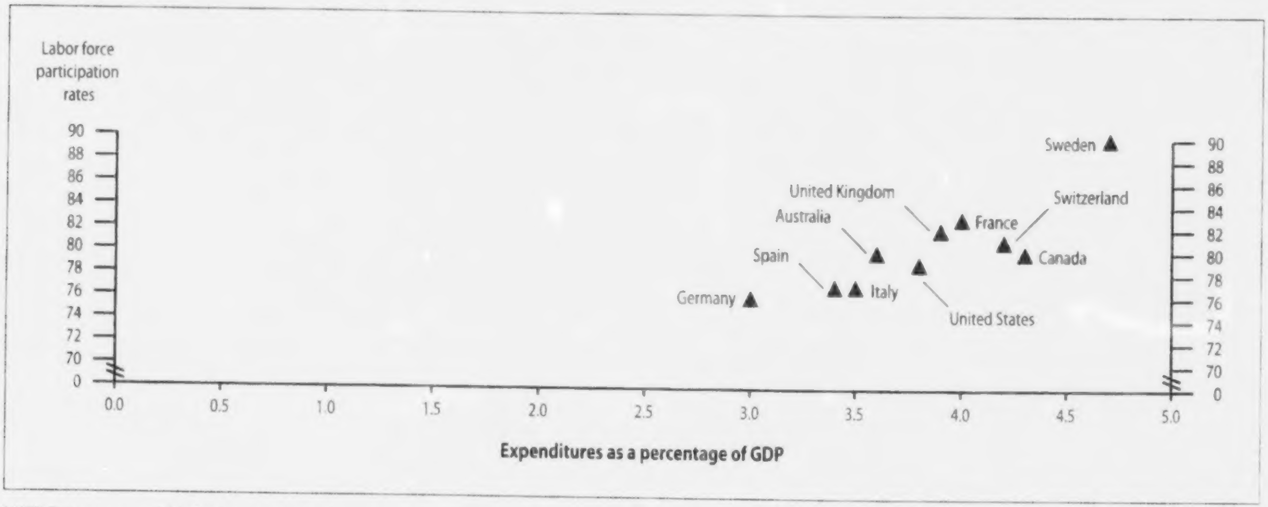
Figure A.—Per pupil expenditures and ninth-grade reading scores



NOTE: Data are unavailable for Australia, Japan, Korea, and the United Kingdom.

SOURCE: Organization for Economic Cooperation and Development, unpublished data, 1997; and U.S. Department of Education, National Center for Education Statistics. (1996). *Reading Literacy in the United States: Findings from the IEA Reading Literacy Study* (NCES 96–258). (Originally published as figure 6.1 on p. 95 of the complete report from which this article is excerpted.)

Figure B.—Public expenditures as a percentage of GDP and labor force participation rates for 25- to 64-year-olds who have completed a secondary education, 1995



NOTE: Data are unavailable for Japan and Korea.

SOURCE: Organization for Economic Cooperation and Development. *Education at a Glance: OECD Indicators*. 1996. (Originally published as figure 6.3 on p. 97 of the complete report from which this article is excerpted.)

GDP (4.7) and the highest labor force participation rate (90 percent). Similarly, Germany had both the lowest level of expenditures as a percentage of GDP (3.0) and the lowest labor force participation rate (76 percent). Both the United States and the United Kingdom fell in the middle of both categories.

No other input measure was associated with any of the other output measures. These analyses lead us to conclude that very little of the variation in educational outputs can be explained through the quantifiable inputs most frequently measured. Yet, there is a wide variation in outputs among the different countries studied. If these measures are not related to student outcomes, what is?

Several explanations are possible. One explanation is that there really are no relationships at this macro level, as

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indicated by the research. Another explanation is that we are looking at the wrong measures. Another hypothesis is that some of these factors are significant, but interact in such a way that the significance cannot be measured using bivariate analyses. However, the limited number of countries precludes extensive multivariate analyses.

Another explanation is that we may not be focusing on the best measures. The inputs discussed in this report are primarily quantifiable inputs, and not indicators of quality. For example, no mention has been made of curriculum content, learning processes, or quality of teacher training. In addition, ways in which students learn (e.g., how teachers present subject material), the role of the teacher, the relevance of the homework assignments, or the kinds of activities in which students are engaged after class all relate to student learning, and thus to outcome measures. Studying these components of the education system is not as easy as collecting administrative data. Understanding these types of inputs requires a more qualitative analysis of curricula, site visits to classrooms, or interviews with teachers and students.

Conclusion

Few of the quantifiable inputs described in chapters 2 and 3 explain any of the student outcomes discussed in chapters 4 and 5. This is not to say that measures such as student/teacher ratios, intended instructional time, and financial resources are unimportant, only that they fail to explain large variations in achievement scores, completion rates, and labor market outcomes at the country level within a macro framework. Further multivariate research at the regional and school levels both within and among countries will be important in determining some of the effects of background characteristics on student outcomes. Likewise, a more specific analysis of expenditures—such as the allocation of resources—may illuminate where finances have the largest impact on student outcomes. For example, U.S. eighth-graders score relatively higher on the science assessment than on the mathematics assessment. Could the United States be allocating a relatively larger proportion of finances to science education than to mathematics education compared to the other countries? Answering these types of questions may help to explain the lack of findings at the aggregate level.

On the other hand, financial inputs and background characteristics could truly have less of an impact on student outcomes than curricular inputs and teaching methods. Other, more qualitative, measures may provide further insight into these differences among countries, but care should be taken in drawing inferences about cause and effect. For example, different teaching styles may work better in some countries than others.

Elementary and secondary education is a large and complex system. International comparisons allow U.S. policymakers to evaluate strategies that appear to be successful in other countries. However, further research within the United States is also needed to determine what strategies will be successful in our unique social environment.

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Data sources: Organization for Economic Cooperation and Development (OECD): *Education at a Glance: OECD Indicators,* 1996; Education Database, 1985–94; and unpublished data, 1997. NCES: *Pursuing Excellence: A Study of U.S. Eighth-Grade Mathematics and Science Teaching, Learning, Curriculum, and Achievement in International Context: Initial Findings From the Third International Mathematics and Science Study* (NCES 97-198); *The TIMSS Videotape Classroom Study: Methods and Findings From an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States* (NCES 1999-074); *Education Indicators: An International Perspective* (NCES 96-003); and *Reading Literacy in the United States: Findings From the IEA Reading Literacy Study* (NCES 96-258). International Association for the Evaluation of Educational Achievement (IEA): 1994–95 Third International Mathematics and Science Study (TIMSS) and Reading Literacy Study, 1992. Educational Testing Service: International Assessment of Educational Progress (IAEP), 1991. International Adult Literacy Survey (IALS), 1994 (joint governmental sponsorship). U.S. Bureau of the Census, International Database, 1985–95. Luxembourg Income Study, *The Real Income of American Children in a Comparative Perspective,* 1997.

For technical information, see the complete report:

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CROSSCUTTING STATISTICS

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Trends in Educational Equity of Girls and Women

Yupin Bae, Susan Choy, Claire Geddes, Jennifer Sable, and Thomas Snyder

This article was excerpted from the Overview of the Statistical Analysis Report of the same name. The sample survey and universe data are primarily from NCES surveys, although there are other sources of national and international data as well.

Introduction

Congress, under the Women's Educational Equity Act provisions (Title V, Part B) of the Elementary and Secondary Education Act of 1965 (as amended in 1994), requested the Secretary of Education to prepare a report on the status of educational equity for girls and women in the United States. This report responds to that request by assembling indicators that examine the extent to which males and females have access to the same educational opportunities, avail themselves equally of these opportunities, perform at the same level, succeed at the same rate, and obtain the same benefits.[1]

The data are drawn primarily from surveys conducted by the National Center for Education Statistics (NCES), although several other sources of national and international data are used as well. While the indicators in this report provide valuable information on many aspects of educational equity, some important issues cannot be addressed with available nationally representative data. Examples include the extent to which sexual harassment undermines the ability of schools to provide a safe learning environment and whether girls and young women are encouraged to challenge themselves in their educational pursuits, especially in mathematics and science.

The data show that in school and in college, females are now doing as well as or better than males in many of the indicators of educational attainment, and that the large gaps in educational attainment that once existed between men and women have significantly decreased or been eliminated altogether. Nevertheless, there are other areas in both elementary/secondary and postsecondary education in which differences persist.

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[1] The complete report contains 44 indicators that examine various aspects of educational equity, from preparation for school, elementary and secondary education, and postsecondary education to outcomes.

Preparation for School

Boys and girls start school on a similar footing in terms of at least some of the same learning opportunities. Girls and boys appear to have similar access to the types of opportunities that help prepare them for school.

In 1996, 67 percent of girls and 65 percent of boys ages 3–5 were enrolled in center-based programs or kindergarten (about the same percentages as in 1991). At home, 84 percent of the girls and 82 percent of the boys in this age group had been read to three or more times in the past week; 82 percent of both boys and girls had been told a story at least once in the past week; and 38 percent of each had visited a library at least once in the past month. For both boys and girls, participation in reading activities generally increased between 1991 and 1996.

Elementary and Secondary Education

Progress through school

Aspects of progress through school include promotion from grade to grade, problems encountered along the way, and high school completion. In each of these areas, female students have done as well as or better than their male peers.

In 1995, girls ages 5–12 were less likely than boys of this age group to have repeated a grade since starting school (5 percent vs. 8 percent). Among children in grades 1–3 in 1995, girls were more likely than boys to be described by their parents as being near the top of their class (51 percent vs. 41 percent). In addition, girls were less likely than boys to have their parents contacted by their schools about problems with their behavior or schoolwork. Also in 1995, about half as many girls as boys in grades 1–12 were identified as having a learning disability (2 percent vs. 5 percent).

Between 1972 and 1997, the status dropout rates for both male and female 16- to 24-year-olds (i.e., the percentage who had not completed high school and were not enrolled in school) decreased for every racial/ethnic group except Hispanics. Among Hispanics, the female dropout rate declined, but the male rate did not change significantly.

Young females who give birth while still of high school age are much less likely than their peers to complete high school. Among 1988 female 8th-graders, the high school completion rate as of 1994 was 54 percent for those who had a child before 1992. In contrast, 94 percent of 1988 8th-graders who had no children by 1994 had completed high school.

Academic performance

Academic performance is a key measure of school success because doing well in school opens doors to postsecondary education and to well-paying jobs. Overall, females have done much better than males in reading and writing, but have generally, though not always, lagged behind in science and mathematics.

Beginning in 1971 and continuing through every year of assessment, females ages 9, 13, and 17 have tested higher than their male peers in reading assessments administered as part of the National Assessment of Educational Progress (NAEP). Females in grades 4, 8, and 11 have outperformed their male peers in writing as well since 1988. Differences in male and female writing achievement have been relatively large, with male 11th-graders scoring at about the same level as female 8th-graders in 1996. Consistent with these results, females were much more likely than males to take AP exams in English and foreign languages in 1997 and to score 3 or higher, which usually allows them to receive college credit.

Between 1973 and 1996, females ages 9 and 13 were usually more likely to score lower than males in science. At age 17, males have almost always outperformed their female peers, but the gender gap in science proficiency has narrowed for 17-year-olds in recent years. In addition to scoring higher in the NAEP assessments, males were more likely than females to take AP examinations in science in 1997 and to earn a score of 3 or higher.

The situation in mathematics has been somewhat different. From 1973 to 1994, gender differences in mathematics scores did not exist for 9- and 13-year-olds. In 1996, however, the achievement scores of males slightly exceeded those of females at both ages because of increases in performance for males. Among 17-year-olds, males have achieved significantly higher average mathematics proficiency scores than females in some, but not all, years.

Gender differences in mathematics and science proficiency also have been observed for countries participating in international studies. In 1995, in general, boys and girls performed similarly in mathematics and science around the

4th grade in about half of the countries, with differences emerging more systematically among older students.[2]

Achievement gaps appear more closely related to attitudes than to coursetaking. Female high school graduates in 1998 were at least as likely as their male peers to have taken upper-level mathematics classes, such as algebra II, trigonometry, precalculus, and calculus (figure A). They were more likely than males to have taken biology and chemistry. However, among 8th- and 12th-graders in 1996, females were less likely than males to like mathematics and science. Among 4th-, 8th-, and 12th-graders, females were less likely than males to think that they were good at mathematics and science.

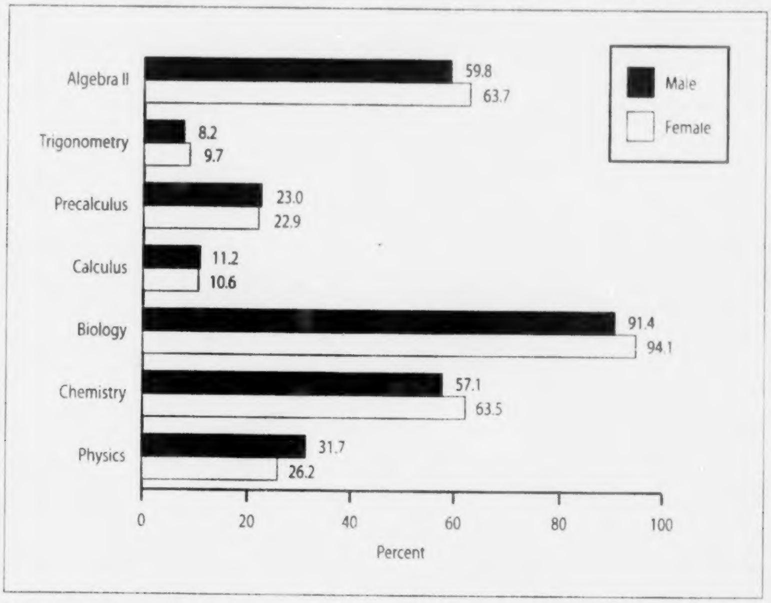
Other activities

The computer has become an important tool in the home, classroom, and workplace. Females are generally just as likely as males to use computers at home and at school, although some of the activities for which they use computers differ.

Extracurricular and community service activities offer opportunities for students to develop skills that are important in the workplace and in society, such as individual and group responsibility and a sense of community. Males and females tend to participate in different types of extracurricular activities (figure B). In 1995, female high school seniors were more likely than their male peers to participate in music or other performing arts, belong to academic clubs, work on the school newspaper or yearbook, or participate in the student council or government. In contrast, male seniors were more likely than female seniors to play on athletic teams.

Females are more active than males in community service activities. In 1996, 53 percent of females in grades 6–12 reported participating in some sort of community service activity, and 29 percent reported that they did so regularly. In contrast, 45 percent of their male peers reported participating, and 22 percent reported participating regularly.

Figure A.—Percentage of high school graduates who took selected courses in high school: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, "1998 High School Transcript Study." (Originally published as figure 7 on p. 5 of the complete report from which this article is excerpted.)

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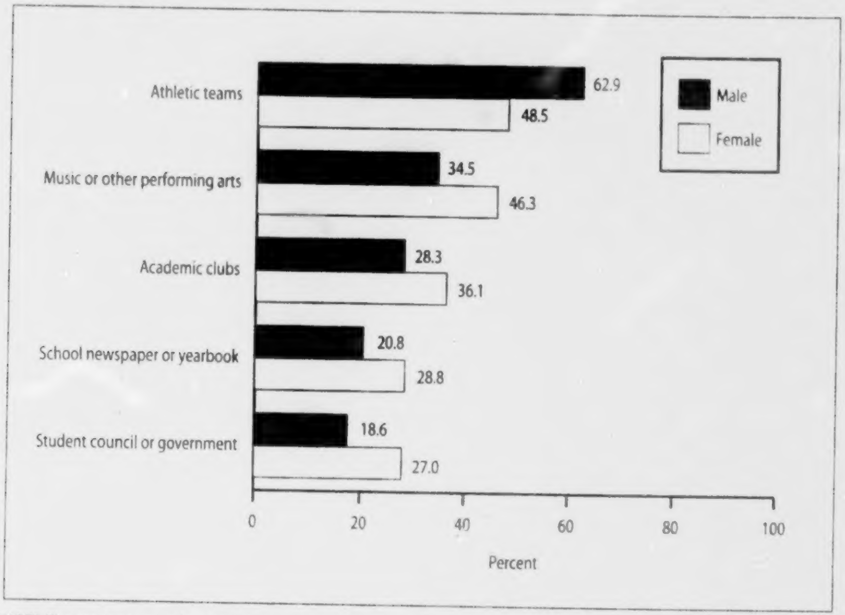
[2] Grades are not identical among all participating countries. See Indicator 44 in the complete report for full details.

Figure B.—Percentage of high school seniors who reported participating in after-school activities, by type of activity: 1995



NOTE: The response rate for this survey was less than 70 percent and a full nonresponse bias analysis has not been done to date. Responses include the following levels of participation: slight, moderate, considerable, and great extent.

SOURCE: University of Michigan, Institute for Social Research, *Monitoring the Future*, 1995. (Originally published as figure 10 on p. 7 of the complete report from which this article is excerpted.)

Postsecondary Education

Transition to postsecondary education

High school students' plans for further education indicate the importance that young people attach to postsecondary education, and aspirations are a first step toward attainment. Both aspirations and enrollment rates of women have increased, and women are now ahead of men in both areas.

In 1995, female high school seniors were more likely than males to definitely plan to graduate from a 4-year college (60 percent vs. 49 percent). Between 1980 and 1995, the percentage of females who reported that they would definitely attend graduate or professional school doubled, from 10 to 22 percent, whereas the proportion of males with this aspiration increased more modestly, from 12 to 16 percent. Increasing proportions of both men and women have been enrolling in college in the fall after finishing high school; in 1997, 70 percent of females and 64 percent of males did so.

Since 1970, a steadily increasing proportion of the undergraduate population has been female. In 1970, 42 percent of all undergraduates were women, increasing to 56 percent in 1996. Women were a majority of both part-time and full-time enrollees.

Women have made even greater gains at the graduate level. In 1970, 39 percent of all graduate students were women, but in 1996, 56 percent of graduate students were women. The majority of first-professional students (e.g., postbaccalaureate students in such fields as medicine, dentistry, law, and theology) are men, but women have made dramatic gains in their representation since 1970. While 9 percent of the students in first-professional degree programs were women in 1970, by 1996, 40 percent of part-time and 42 percent of full-time first-professional students were women.

Persistence and attainment

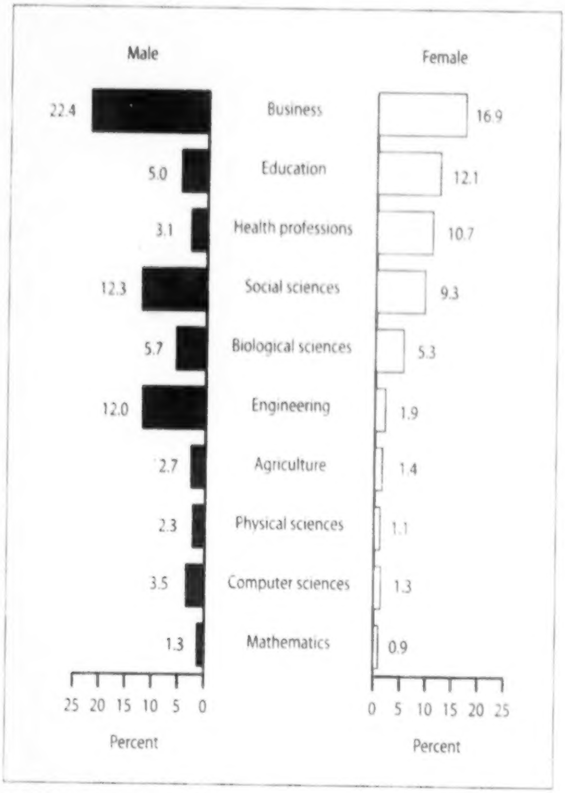
Completion of postsecondary programs is an important indicator of personal success and an educational climate that fosters success for all. Among freshmen who enrolled in a college or university for the first time in 1989–90 seeking a bachelor's degree, a greater percentage of women (50 percent) than men (41 percent) had earned a bachelor's degree by 1994. Similar proportions of men and women had earned associate's degrees (about 5 percent) and certificates (3 percent and 4 percent, respectively).

Considering degree attainment more generally (not just among those who started in 1989–90), women earned more than half of all bachelor's degrees in 1996 (55 percent). The increase in participation by women in postsecondary education over the past 25 years has meant that, among the general population ages 25–29 in 1997, a slightly larger percentage of women than men have a bachelor's or higher degree (29 percent vs. 26 percent). Male and female bachelor's degree recipients tend to choose different majors, however; in 1996–97, women were much more likely than men to earn degrees in education, health, and psychology (not shown), whereas men were more likely than women to earn degrees in engineering, physical sciences, and computer science (figure C).

A similar pattern is seen at the graduate level. While the percentage of master's, doctoral, and first-professional degrees earned by women increased substantially in all fields between 1970 and 1996, women earned a majority of the master's and doctoral degrees in education and health in 1996, and men earned nearly three-quarters of the degrees in computer science and a higher proportion in engineering. In addition, 44 percent of law degrees, 41 percent of medical degrees, and 36 percent of dentistry degrees were awarded to women.

One final measure of women's equity at the college level is participation in NCAA-sponsored sports. In 1996–97, men outnumbered women in collegiate sports participation. However, female athletes were more likely than male athletes to graduate in a timely fashion. Among women

Figure C.—Percentage of bachelor's degrees conferred, by selected fields: 1996–97



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1997 Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS C:1996–97). (Originally published as figure 15 on p. 9 of the complete report from which this article is excerpted.)

athletes who entered college in 1992, 68 percent graduated by 1998, compared with 52 percent of men.

Outcomes

Higher levels of educational attainment are associated with higher labor force participation rates, higher rates of employment, and higher earnings. In the United States, as in other selected large, industrialized countries (Canada, France, Germany, Italy, and the United Kingdom) in 1995, women ages 25–64 had lower labor force participation rates than men at all levels of education. Labor force participation for women in this age group generally increased with educational attainment, however, narrowing the gap between men and women at higher education levels.

Although women have been less likely than men to be employed at all levels of educational attainment, gender gaps in employment rates have narrowed over time. For example, in 1971, 94 percent of men and 43 percent of women ages 25–34 with a high school diploma or GED were employed (a difference of 51 percentage points). By 1997, 86 percent of men and 70 percent of women with this level of education were employed, narrowing the gap to 16 percentage points. Between 1971 and 1997, the gender gap generally decreased as education level increased.

Women's median annual earnings for full-time, year-round workers are lower than those of their male counterparts with the same level of educational attainment. However, this gap has been narrowing. In 1970, women ages 25–34 with a bachelor's degree had a median annual salary equivalent to 57 percent of what their male peers earned; in 1997, it was 78 percent.

The median annual starting salary (in constant 1997 dollars) for 1992–93 college graduates who were working full time and not enrolled in school was $26,700 for males and $22,500 for females. Variations in major field of study account for some of this difference. For example, for those who majored in engineering, females had a median starting salary that was similar to that of their male peers. For students who majored in business, females had a median starting salary that was about $4,000 less than that of their male peers.

Higher levels of educational attainment bring proportionally larger benefits for women than for men. Women ages 25–34 with a bachelor's degree or higher who worked full time year-round in 1997 earned 61 percent more than their counterparts with no more than a high school education. The earnings advantage for their male counterparts was 54 percent.

Conclusion

By most of the indicators in this report, females are doing at least as well as males. Girls and boys begin school with similar preschool and early literacy participation experiences, and female students have consistently outperformed their male peers in reading and writing. Females have tended to lag behind males in science and mathematics, however.

Since the early 1970s, women have made dramatic gains in postsecondary education in terms of enrollment and attainment, and are successful relative to men in aspirations, enrollment, and bachelor's degree completion. Gender differences in college majors persist, however, with women still concentrated in fields like education and men more likely than women to earn degrees in engineering, physics, and computer science.

In terms of labor market outcomes, the findings are mixed. Women ages 25–34 are less likely than their male counterparts to be employed, but women with higher levels of educational attainment are employed at rates more similar to those of men than are women with lower levels of attainment. Women tend to earn less than men with similar educational attainment.

Data sources: More than 15 sources of data, including multiple NCES surveys.

For technical information, see the complete report:

Bae, Y., Choy, S., Geddes, C., Sable, J., and Snyder, T. (2000). *Trends in Educational Equity of Girls and Women* (NCES 2000–030).

Author affiliations: Y. Bae and J. Sable, Pinkerton Computer Consultants, Inc.; T. Snyder and C. Geddes, NCES; and S. Choy, MPR Associates, Inc.

For questions about content, contact Thomas D. Snyder (*tom_snyder@ed.gov*).

To obtain the complete report (NCES 2000–030), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Employment of Young Adults, by Educational Attainment

This article was originally published as an Indicator of the Month, taken from The Condition of Education: 1999. *The sample survey data are from the March Current Population Survey, conducted by the U.S. Census Bureau.*

Many factors affect employment rates among adults. Some factors influence the willingness of employers to offer jobs to individuals with different levels of education at the going wage rate, whereas others influence the willingness of individuals to take jobs at this wage rate. The percentage of young adults who are employed is an indication of both the skill levels required by employers and the advantages employment offers to individuals relative to other pursuits.

- Between 1971 and 1998, the employment rate of male and female 25- to 34-year-olds was generally higher among those individuals with a higher level of education (table 1; figure 1). For example, in 1998, males and females ages 25–34 with a bachelor's degree or higher were more likely to be employed than their peers who had lower levels of educational attainment.
- Between 1971 and 1998, the employment rate of males ages 25–34 decreased for those who had not finished high school and those with a high school diploma or GED, and remained relatively constant for those with some college and those with a bachelor's degree or higher.
- Between 1971 and 1998, the employment rate of females ages 25–34 increased across all education levels. However, the rate of increase for females who did not complete high school was lower than the rate of increase for females who attained higher levels of education.

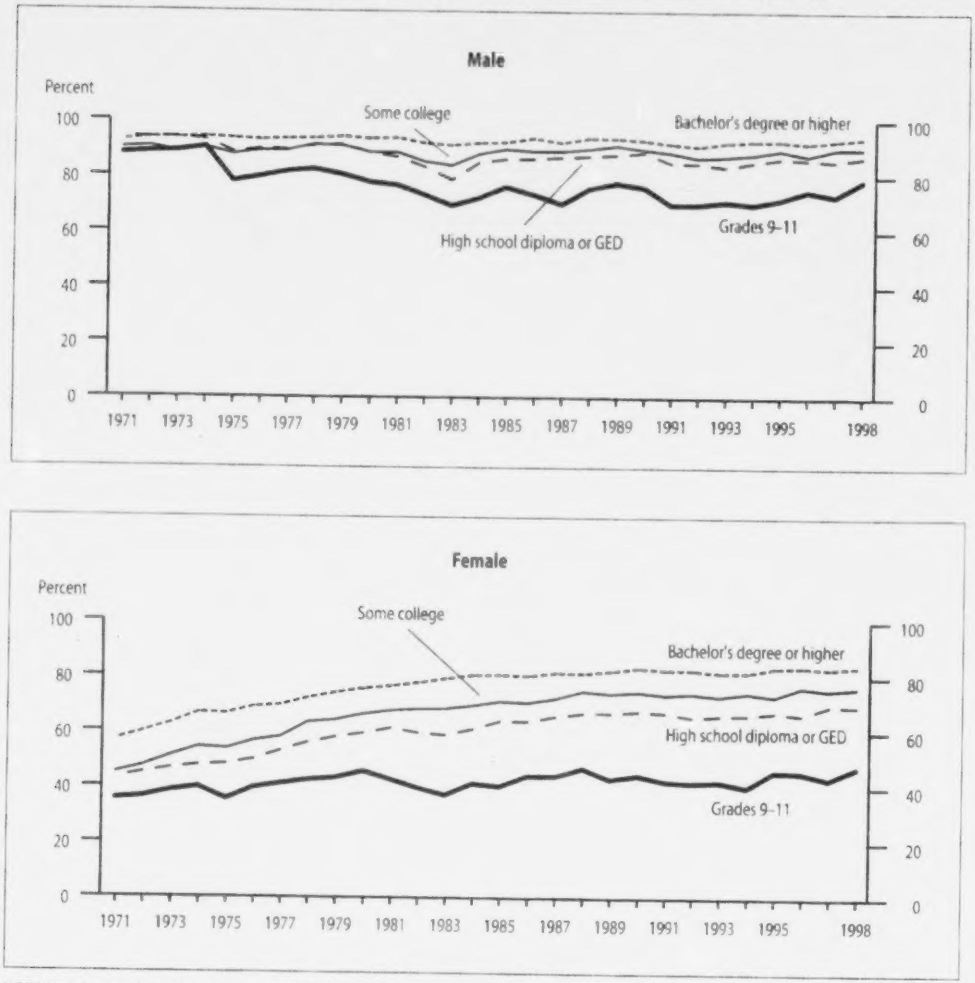
Table 1.—Employment rate of 25- to 34-year-olds, by sex and educational attainment: March 1971–98

	Male				Female			
March	Grades 9–11	High school diploma or GED	Some college	Bachelor's degree or higher	Grades 9–11	High school diploma or GED	Some college	Bachelor's degree or higher
1971	87.9	93.6	89.9	92.5	35.4	43.1	44.9	56.9
1973	88.8	93.8	88.5	93.5	38.4	46.5	51.0	62.7
1975	78.0	88.4	87.7	93.5	35.4	48.1	53.6	66.3
1977	81.5	89.5	89.1	93.3	41.0	53.0	58.0	69.5
1979	80.5	91.3	90.9	94.1	43.2	58.0	64.2	74.0
1981	76.7	86.9	88.5	93.7	42.7	61.3	67.6	76.4
1983	69.3	78.6	83.8	91.1	37.1	58.8	68.3	79.2
1985	76.1	86.1	89.7	92.7	40.3	63.9	71.0	80.6
1987	75.0	86.8	89.0	92.1	44.0	65.6	72.2	81.4
1989	77.6	87.8	91.1	93.7	43.0	66.9	74.0	82.1
1990	76.0	88.6	89.7	93.0	44.4	67.5	74.5	83.2
1991	69.9	84.9	88.6	91.8	42.3	67.0	73.5	82.6
1992	69.9	84.7	86.7	90.9	41.7	65.4	74.0	82.5
1993	71.0	83.6	87.2	92.3	42.2	66.0	73.0	81.6
1994	70.0	85.2	88.0	92.8	40.1	66.2	74.3	81.6
1995	71.8	86.6	89.6	92.9	45.8	67.2	73.0	83.4
1996	74.9	86.3	87.6	92.1	45.5	66.3	76.4	83.7
1997	73.0	85.6	90.0	93.0	43.1	69.6	75.3	83.1
1998	78.5	87.0	90.1	94.0	47.3	69.5	76.2	83.8

NOTE: The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. The employment rate represents the number of employed individuals as a percentage of the total population.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March 1971–98 (selected years).

Figure 1.—Employment rate of 25- to 34-year-olds, by sex and educational attainment: March 1971–98



NOTE: The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. The employment rate represents the number of employed individuals as a percentage of the total population.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), March 1971–98.

Data source: U.S. Bureau of the Census, Current Population Survey, March 1971–98.

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/)*, or
- volume 2 of the printed version: *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

For questions about content, contact John Wirt *(john_wirt@ed.gov)*.

To obtain this Indicator of the Month (NCES 2000–007), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Digest of Education Statistics: 1999

Thomas D. Snyder and Charlene M. Hoffman

This article was excerpted from the Foreword and Introduction to the Compendium of the same name. The sample survey and universe data are from numerous sources, both government and private, and draw especially on the results of surveys and activities carried out by NCES.

The 1999 edition of the *Digest of Education Statistics* is the 35th in a series of publications initiated in 1962. (The *Digest* has been issued annually except for combined editions for the years 1977–78, 1983–84, and 1985–86.) Its primary purpose is to provide a compilation of statistical information covering the broad field of American education from kindergarten through graduate school.

The publication contains information on a variety of subjects in the field of education statistics, including the number of schools and colleges, teachers, enrollments, and graduates, in addition to educational attainment, finances, federal funds for education, employment and income of graduates, libraries, and international education. Supplemental information on population trends, attitudes on education, education characteristics of the labor force, government finances, and economic trends provide background for evaluating education data.

In addition to updating many of the statistics that have appeared in previous years, this edition contains a significant amount of new material, including

- poverty rates for 5- to 17-year-olds in large school districts;
- federal funds, by program, for large school districts;
- trends in the average size of public schools, by level of school;
- distribution of public school students, by racial/ethnic concentration of enrollment in school;
- selected statistics for Hispanic-serving institutions of higher education;
- selected statistics for tribal colleges predominately serving American Indian students;
- percent of colleges using various selection criteria for admission; and
- average undergraduate tuition and fees, by percentage distribution of student enrollment.

Participation in Formal Education

In the fall of 1999, about 68.1 million persons were enrolled in American schools and colleges (table A). About 3.8 million were employed as elementary and secondary school teachers and as college faculty. Other professional, administrative, and support staff of educational institutions numbered 4.2 million. Thus, about 76 million people were involved, directly or indirectly, in providing or receiving formal education. In a nation with a population of about 273 million, more than 1 out of every 4 persons participated in formal education.

Table A.—Estimated number of participants in elementary and secondary education and in higher education: Fall 1999

(In millions)

Participants	All levels (elementary, secondary, and higher education)	Elementary and secondary schools			Institutions of higher education		
		Total	Public	Private	Total	Public	Private
Total	76.1	59.0	52.4	6.6	17.1	13.1	4.0
Enrollment*	68.1	53.2	47.2	6.0	14.9	11.6	3.3
Teachers and faculty	3.8	3.1	2.7	0.4	0.7	0.5	0.2
Other professional, administrative, and support staff	4.2	2.7	2.5	0.2	1.5	1.0	0.5

*Includes enrollments in local public school systems and in most private schools (religiously affiliated and nonsectarian). Excludes subcollegiate departments of institutions of higher education, residential schools for exceptional children, and federal schools. Elementary and secondary includes most kindergarten and some nursery school enrollment. Excludes preprimary enrollment in schools that do not offer first grade or above. Higher education comprises full-time and part-time students enrolled in degree-credit and nondegree-credit programs in universities, other 4-year colleges, and 2-year colleges.

NOTE: The enrollment figures include all students in elementary and secondary schools and colleges and universities. However, the data for teachers and other staff in public and private elementary and secondary schools and colleges and universities are reported in terms of full-time equivalents. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, unpublished projections and estimates. (This table was prepared in August 1999.) (Originally published as table 1 on p. 11 of the complete report from which this article is excerpted.)

Elementary/Secondary Education

Enrollment

Since the enrollment rates of kindergarten and elementary school age children have not changed much in recent years, increases in elementary school enrollment have been driven primarily by increases in the number of young people. Enrollment in public elementary and secondary schools rose 18 percent between 1985 and 1999.* The fastest public school growth occurred in the elementary grades, where enrollment rose 25 percent over the same period, from 27.0 million in 1985 to a record high of 33.7 million in 1999. Secondary enrollments in public schools declined 8 percent from 1985 to 1990, but then rose by 19 percent from 1990 to 1999, for a net increase of 9 percent. Private school enrollment grew more slowly than public school enrollment over this period, rising 7 percent, from 5.6 million in 1985 to 6.0 million in 1999. As a result, the percentage of students enrolled in private schools declined slightly, from 12 percent in 1985 to 11 percent in 1999.

The National Center for Education Statistics (NCES) forecasts record levels of enrollment for the next several years. The fall 1999 public school enrollment marks a new record, and new records are expected every year through the early 2000s. Public elementary enrollment is projected to grow slowly over the next few years and then decline slightly, so that the fall 2009 projection is slightly lower than the 1999 enrollment. In contrast, public secondary school enrollment is expected to have a substantial increase of 9 percent between 1999 and 2009.

Teachers

An estimated 3.1 million elementary and secondary school teachers were engaged in classroom instruction in the fall of 1999. This number has risen in recent years, up about 13 percent since 1989. The number of public school teachers in 1999 was 2.7 million, and the number of private school teachers was about 0.4 million. About 1.9 million teachers taught in elementary schools, while about 1.2 million were teaching at the secondary level.

The number of public school teachers has risen slightly faster than the number of students over the past 10 years, resulting in small declines in the pupil/teacher ratio. In the fall of 1998, there were 16.8 public school pupils per teacher, compared with 17.3 public school pupils per teacher 10 years earlier. During the same time period, the pupil/teacher ratio in private schools remained relatively stable. Data from the mid-1990s suggest a continuation of the historical trend toward lower pupil/teacher ratios, which had been stable during the late 1980s and early 1990s.

The salaries of public school teachers, which lost purchasing power to inflation during the 1970s, rose faster than the inflation rate during the 1980s. The rising salaries reflected an interest by state and local education agencies in boosting teacher salary schedules and, to some extent, an increase in teachers' experience and education levels. Since 1990–91, salaries for teachers have fallen slightly after adjusting for inflation. The average salary for teachers in 1997–98 was $39,385.

Student performance

Reading. Overall, the reading achievement scores for the country's 9-, 13-, and 17-year-old students are mixed. Reading performance scores for 9- and 13-year-olds were somewhat higher in 1996 than they were in 1971. However, there has been little change since the mid-1980s. The reading performance of 17-year-olds was about the same in 1996 as it was in 1971. Black 13- and 17-year-olds exhibited higher reading performance in 1996 than in 1971. Black 9-year-olds' performance improved significantly between 1971 and 1980, but it has not improved further. The performance levels of white 9- and 13-year-olds also rose between 1971 and 1996. Separate data for Hispanics were not gathered in 1971, but changes between 1975 and 1996 indicate an increase among 9-year-olds. There was no significant difference between the 1975 and 1996 reading performance of 13- and 17-year-old Hispanics.

Mathematics. Results from assessments of mathematics proficiency indicate that 9- and 13-year-old students improved their performance between 1973 and 1996. However, there has been no significant change for 9-year-olds since 1990, and the performance of older students on advanced mathematical operations has been stable. The proportion of 17-year-olds who demonstrated skill with moderately complex procedures and reasoning rose from 52 percent in 1978 to 60 percent in 1996. During the same time period, the proportion of 17-year-olds with skill in multistep problem solving and algebra remained unchanged.

White, black, and Hispanic students improved their mathematics performance between 1973 and 1996, among all three age groups. Mathematics scores for white, black, and Hispanic 9-, 13- and 17-year-olds improved between 1986 and 1996.

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*The 1999 enrollment data are based on projections.

Science. Long-term changes in science performance have been mixed, though changes over the past 10 years have been generally positive. In 1996, science performance among 17-year-olds was lower than in 1970, but higher than in 1986. The science performance level of 13-year-olds was higher in 1996 than in 1986, recouping earlier declines. The science performance of 9-year-olds increased between 1986 and 1996, after showing no significant change between 1970 and 1986.

The science performance of white 9- and 13-year-olds was about the same in 1996 as it was in 1970, and the performance of 17-year-olds was lower in 1996. However, the performance at each of the three age groups was higher in 1996 than in 1986. Black and Hispanic 9- and 13-year-olds had higher science performance in 1996 than in the 1970s. Black 17-year-olds showed a decline through 1982 but then an increase by 1996. Despite significant gains by younger black and Hispanic students, their average performance remains lower than for white students. Although the performance gap between black and white students has narrowed, the science performance for black 13-year-olds was slightly lower than the average for white 9-year-olds in 1996.

International comparisons. The results of a 1995 international assessment in math and science show that U.S. fourth- and eighth-graders compare more favorably with students in other countries in science than in mathematics. In mathematics, U.S. eighth-graders scored below the international average, falling below 20 of the 41 countries tested. Fourth-graders performed above the international average, scoring below 7 of the 26 countries tested, including Singapore, Korea, and Japan. Students at both the fourth- and eighth-grade levels scored above the international average in science. Eighth-grade students in the United States were outperformed by those in 9 out of 41 countries. Fourth-grade students once again compared more favorably with their international counterparts than eighth-grade students. Out of 26 countries that participated in the fourth-grade assessment, students in only 1 country outperformed the U.S. students in science.

The international standing of U.S. students was stronger at the 8th grade than at the 12th grade in both mathematics and science among the countries that participated in the assessments at both grade levels. U.S. 12th-graders performed below the international average and among the lowest scoring of the 21 countries on the assessment of mathematics general knowledge. U.S. students were outperformed by those in 14 countries, and outperformed those in 2 countries. U.S. 12th-graders also performed below the international average and among the lowest scoring of the 21 countries on the assessment of science general knowledge. U.S. students were outperformed by students in 11 countries, and they outperformed students in 2 countries. Our students' scores were not significantly different from those of seven countries, including France, Germany, Italy, and the Russian Federation.

Public perception

Public perception about problems facing the local public schools has shifted over the years. In 1999, lack of discipline was cited as a major problem by 18 percent of the population; fighting, gangs, and violence was cited by 11 percent; and lack of financial support was cited by 9 percent. Use of drugs and large schools/overcrowding were cited as major problems by 8 percent of the population.

Higher Education

Enrollment

College enrollment hit a record level of 14.6 million in fall 1998 and was expected to reach a new high of 14.9 million in 1999, after falling slightly between 1993 and 1995. Despite decreases in the traditional college-age population during the 1980s and early 1990s, total enrollment has increased because of the high enrollment rate of older women and a rising rate of college attendance for recent high school graduates. Since 1990, the number of full-time students has generally increased at a faster rate than part-time students.

Faculty and staff

During the fall of 1995, there were 932,000 faculty members in higher education institutions. Making up this figure were 551,000 full-time and 381,000 part-time faculty. In 1992, full-time instructors generally taught more hours and more students than part-time instructors, with 61 percent of full-time instructors teaching 8 or more hours per week and two-thirds teaching 50 or more students. About 30 percent of part-time instructors taught 8 or more hours per week, and 30 percent taught 50 or more students.

White males constituted a disproportionate share of full-time college faculty in 1995. Overall, about 57 percent of full-time faculty were white males. However, this distribution varied substantially by rank of faculty. Among full professors, the proportion of white males was 75 percent. The proportion was somewhat lower among the lower ranked faculty, with white males making up 39 percent of the lecturers.

Graduates, Degrees, and Attainment

The number of high school graduates in 1998–99 totaled about 2.8 million. Approximately 2.5 million graduated from public schools, and less than 0.3 million graduated from private schools. The number of high school graduates has declined from its peak in 1976–77, when 3.2 million students earned diplomas. In contrast, the number of GED credentials issued rose from 337,000 in 1976 to 496,000 in 1998. The dropout rate also declined over this period, from 14 percent of all 16- to 24-year-olds in 1977 to 12 percent in 1998. The number of degrees conferred by institutions of higher education during the 1998–99 school year by degree level has been projected: 563,000 associate's degrees; 1,166,000 bachelor's degrees; 385,000 master's degrees; 76,300 first-professional degrees; and 44,100 doctor's degrees.

The Bureau of the Census has collected annual statistics on the educational attainment of the population in terms of years of school completed. Between 1980 and 1998, the proportion of the adult population 25 years of age and over with 4 years of high school or more rose from 69 percent to 83 percent, and the proportion of adults with at least 4 years of college increased from 17 percent to 24 percent. In contrast, the proportion of young adults (25- to 29-year-olds) completing high school showed a small increase of about 3 percentage points, reaching 88 percent in 1998.

Education Expenditures

Expenditures for public and private education, from preprimary through graduate school, are estimated at $619 billion for 1998–99. The expenditures of elementary and secondary schools are expected to total about $372 billion for 1998–99, while those of institutions of higher education will be about $247 billion. Viewed in another context, the total expenditures for education are expected to amount to about 7.3 percent of the gross domestic product in 1998–99, about the same percentage as in the recent past.

Summary

The statistical highlights presented here provide a quantitative description of the current American education scene. Clearly, from the large number of participants, the number of years that people spend in school, and the large sums expended by educational institutions, it is evident that the American people have a high regard for education. Assessment data indicate that there have been improvements in mathematics and science performance between 1986 and 1996. A high proportion of high school graduates are going on to college. Yet, wide variations in student proficiency from state to state and mediocre mathematics scores of American students in international assessments pose challenges.

Data sources: Over 50 sources of data, including most NCES studies.

For technical information, see the complete report:

Snyder, T.D., and Hoffman, C.M. (2000). *Digest of Education Statistics: 1999* (NCES 2000–031).

Author affiliations: T.D. Snyder and C.M. Hoffman, NCES.

For questions about content, contact C.M. Hoffman (*charlene_hoffman@ed.gov*).

To obtain the complete report (NCES 2000–031), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

METHODOLOGY

Beginning Postsecondary Students Longitudinal Study First Follow-up 1996–98 (BPS:96/98) Methodology Report
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Beginning Postsecondary Students Longitudinal Study First Follow-up 1996–98 (BPS:96/98) Methodology Report

J.S. Wine, R.W. Whitmore, R.E. Heuer, M. Biber, and D.J. Pratt

This article was originally published as the Executive Summary of the technical report of the same name. The sample survey data are from the Beginning Postsecondary Students Longitudinal Study (BPS).

Introduction

The 1996 Beginning Postsecondary Students Longitudinal Study (BPS) follows a cohort of students who started their postsecondary education during the 1995–96 academic year. Students were first interviewed during 1996 as part of the 1995–96 National Postsecondary Student Aid Study (NPSAS:1996). BPS:1996/1998 is the first follow-up of this cohort. A second follow-up in 2001 will monitor academic progress through 6 years and assess completion rates for 4-year programs in the normal time expected. A third follow-up, scheduled to occur in 2003, 7 to 8 years after college entry, will allow for analysis of attainment among students who started working on a baccalaureate degree in 1995–96.

Content of the Report

This technical report describes the methods and procedures used for the full-scale data collection effort of BPS:1996/1998. The report begins by presenting the background and purposes of the BPS full-scale study. Next, the design and methodology of the study are described, and overall outcomes of data collection and evaluations of the quality of data collected are provided. Discussions of data file construction and of weighting and variance estimations are presented in the final chapters. Materials used during the full-scale study are provided as appendices to the report.

Sample Design

The respondent universe for the BPS:1996/1998 full-scale study consisted of all students who began their postsecondary education for the first time during the 1995–96 academic year at any postsecondary institution in the United States or Puerto Rico. The sample students were the first-time beginners (FTBs) who attended postsecondary institutions eligible for inclusion in NPSAS:1996 and who were themselves NPSAS eligible. Students eligible for BPS:1996/1998 were those students eligible for NPSAS:1996 who were FTBs at NPSAS sample institutions in the 1995–96 academic year. The number of NPSAS:1996 computer-assisted telephone interview (CATI) respondents for which BPS:1996/1998 interviews were attempted was 11,985. In addition, 425 NPSAS:1996 nonrespondents who were potential FTBs were sampled for follow-up to improve upon the nonresponse bias reduction achieved through the nonresponse adjustments incorporated into the NPSAS:1996 statistical analysis weights. In an attempt to increase both the sample yield and the weighted effective response rate, a nonrespondent subsample of 300 was selected for more intensive data collection efforts from among nonfinalized CATI nonrespondents.

Instrument Development

Section A of the BPS interview determined both eligibility for NPSAS:1996 and status as an FTB for those individuals who were nonrespondents during the NPSAS:1996 interview. It also collected background information for NPSAS:1996 partial respondents who missed key items during the base-year interview. Sections B through G collected new and updated information on postsecondary enrollment, employment, income, family formation/household composition, student financial aid, debts, education experiences, and education and career aspirations. The final section updated locating information in order for sample members to be more easily located during the second follow-up.

Data Collection

Three months prior to the start of data collection, a package was mailed to parents and/or other contacts to update the most recent student addresses and gain cooperation by explaining the purposes of the study. A standard lead letter was then mailed to students 2 weeks prior to the start of data collection to inform them of the upcoming interview and obtain additional postal service address updates. New contact information was preloaded into the CATI instrument to assist in locating sample members. Cases not located during the CATI-internal locating process were worked through one or more CATI-external locating procedures.

Training of interviewers

For BPS:1996/1998, project staff developed two separate training programs: one for telephone interviewers and supervisors, who collected data through CATI; and one for field interviewers and supervisors, who conducted interviews through computer-assisted personal interviews (CAPI). Training topics covered administrative procedures, including confidentiality requirements and quality control techniques; student locating; interactions with students; the nature of the data to be collected; and the organization and operation of the CATI and CAPI programs used for data collection.

Telephone interviewing

CATI locating and interviewing began in the spring of 1998. The initial CATI sample consisted of verified FTBs who had been located and interviewed successfully in the NPSAS:1996 full-scale data collection and for whom locating information was available. Additionally, sampled NPSAS:1996 nonrespondents for whom new or verified locating information was obtained were included in the CATI sample. The remaining sample members became part of the initial field tracing and interviewing sample. Field locating and interviewing activities began approximately 3 months after the start of CATI interviewing so that a sufficient number of cases would be available to be worked in each of the 34 geographic clusters.

Contacting and Interviewing Outcomes

Overall contacting and interviewing results

Overall contacting and interviewing results are shown in figure 1. Of the 12,410 students in the original sample, 11,184 were located and contacted, and 166 were excluded (out of scope) because they were deceased, out of the country, institutionalized or physically/mentally incapacitated,[1] had no phone, or were otherwise unavailable for the entire data collection period. Among the contacted subsample, 10,332 were interviewed, 10,268 of whom were verified FTBs. The unweighted contact rate, exclusive of those out of scope, was 91.3 percent (11,184/12,244). For those contacted, the interview rate was 92.3 percent (10,268/11,120). The overall unweighted response rate was 84.3 percent (91.3 x 92.3).

Refusal conversion

Efforts to gain cooperation from sample members included refusal conversion procedures. When a case initially refused to participate, the case was referred to a refusal conversion specialist. Fifteen percent (1,928 cases) refused to be interviewed at some point during data collection. Refusal conversion specialists called the sample members to try to gain full cooperation with the interview. When full cooperation could not be obtained, an abbreviated interview was attempted to obtain key information. Fifty-three percent (1,018 cases) of the refusals were converted.

Partial responses

Of the 10,268 verified FTBs who were interviewed, full interviews were completed for 9,812 sample members, partial interviews were completed for 113 sample members, and abbreviated interviews were completed with 343. An interview was considered a partial interview if at least section B (enrollment information) of the main interview was completed, but not the full interview.

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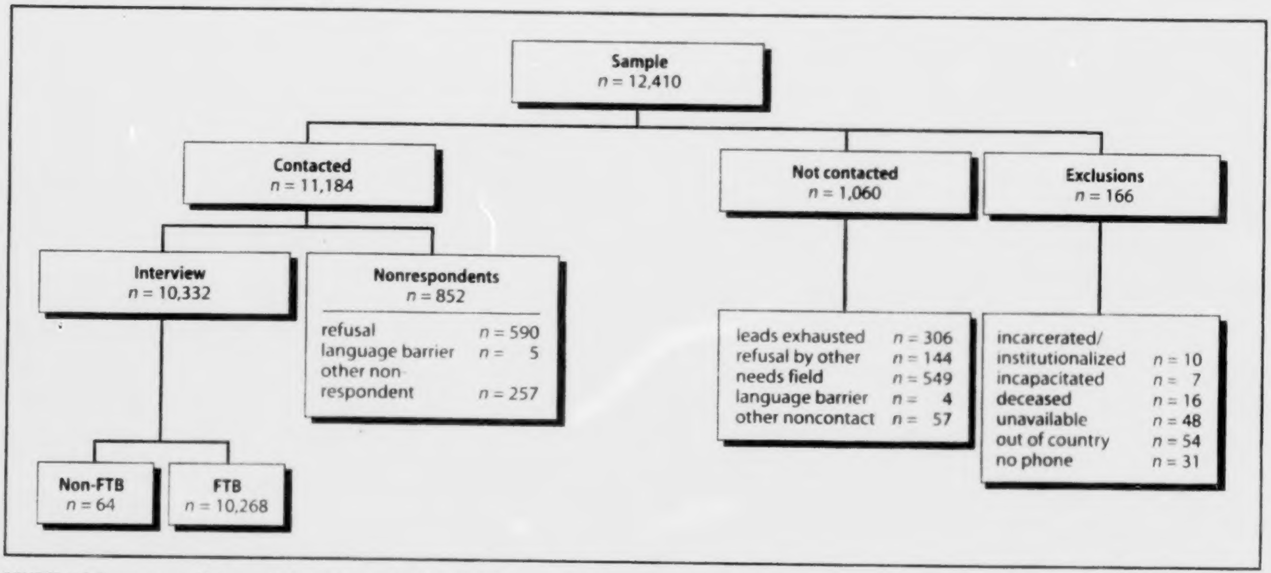
[1] Sample members were identified as institutionalized or physically/mentally incapacitated by parents or other contacts.

Figure 1.—Contacting and interviewing outcomes


Sample
n = 12,410
Contacted
n = 11,184
Not contacted
n = 1,060
Exclusions
n = 166
Interview
n = 10,332
Nonrespondents
n = 852
refusal n = 590
language barrier n = 5
other non respondent n = 257
leads exhausted n = 306
refusal by other n = 144
needs field n = 549
language barrier n = 4
other noncontact n = 57
incarcerated/ institutionalized n = 10
incapacitated n = 7
deceased n = 16
unavailable n = 48
out of country n = 54
no phone n = 31
Non-FTB
n = 64
FTB
n = 10,268

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

Field interviewing

A total of 2,094 cases were assigned to field interviewers. Cases were selected for a number of reasons, including Puerto Rico residence, inability to locate in CATI, refusal in CATI, or extensively worked in CATI but unable to reach the subject. Only cases located in close geographic proximity to a field interviewer were assigned to the field. Seventy percent of the field cases were contacted (in either CATI or field), and 70 percent of those contacted were interviewed.

Timing

The average administration time for the full-scale interview was 20 minutes, which was 2 minutes shorter than the field test and 9 minutes shorter than the NPSAS:1996 full-scale interview. On average, NPSAS:1996 nonrespondents took 5 minutes longer to complete the interview than NPSAS:1996 respondents. Section A, which was skipped by NPSAS:1996 full respondents, accounts for the majority of this additional time.

Indeterminate responses

Overall item nonresponse rates were low, with only 10 of the 363 items containing over 10 percent missing data. Items with the highest rates of nonresponse were those pertaining to income. Many respondents were reluctant to provide information about personal and family finances and, among those who were not, many simply did not know.

Online coding

The BPS:1996/1998 instrument included tools that allowed computer-assisted online assignment of codes to literal responses for postsecondary education institution, major field of study, occupation, and industry. Ten percent of the major, occupation, and industry coding results were sampled and examined on a regular basis during data collection. Approximately 2 to 9 percent of the verbatim text strings were too vague to properly evaluate. Additionally, 5 to 10 percent of the strings were recoded, although very few resulted in a shift across broad categories.

Quality control monitoring

Monitors listened to up to 20 questions during an ongoing interview and, for each question, evaluated two aspects of the interviewer-respondent interchange: whether the interviewer delivered the question correctly and whether the interviewer keyed the appropriate response. Over 14,000 items were monitored during the data collection period. The majority of the monitoring data was collected during the first half of data collection.

Analysis Weights

The sample for BPS:1996/1998 includes not only the students who were identified as FTBs in their NPSAS:1996 interviews, but also a subsample of NPSAS:1996 nonrespondents who were considered potential FTBs at the conclusion of the study. Therefore, computation of the statistical analysis weights for BPS:1996/1998 consisted of the following primary steps: computing special-purpose NPSAS:1996 weights that account for follow-up of NPSAS:1996 nonrespondents within BPS:1996/1998; and computing the BPS:1996/1998 analysis weights from the special-purpose NPSAS:1996 weights.

Measures of Precision

The cumulative effect of the various factors affecting the precision of a survey statistic is often modeled as the survey design effect. The design effect is defined as the ratio of the sampling variance of the statistic under the actual sampling design divided by the variance that would be expected for a simple random sample of the same size. Hence, the design effect is unity (1.00), by definition, for simple random samples. For most practical sampling designs, the survey design effect is greater than unity, reflecting that the precision is less than could be achieved with a simple random sampling of the same size (if such a design were practical). The size of the survey design effect depends largely on the sample size and intracluster correlation within the primary sampling units. Hence, statistics that are based on observations that are highly correlated within institutions will have higher design effects for BPS. In order to provide an approximate characterization of the precision with which BPS:1996/1998 survey statistics can be estimated, the full report includes a short series of tables that provide estimates of key statistics, their standard errors, and the estimated survey design effects.

Measures of Bias

Although there are many other potential sources of bias, one of the most important sources of bias in sample surveys is survey nonresponse. Survey nonresponse results in bias when the unobserved outcomes for the nonrespondents are systematically different from the observed outcomes for the respondents. Hence, we can model the potential for nonresponse bias by modeling the pattern of mean response by date of response. We first used the date of interview (or date of last access for non-CATI responses) to subdivide the 10,268 survey respondents into 10 groups of approximately 1,000 respondents each. Then, within each institution level (less-than-2 year, 2-year, and 4-year), we again subdivided all respondents into 10 groups of approximately equal numbers of respondents. This strategy was adopted so that the mean response in each group would have approximately the same precision. However, it also results in respondent groups with shorter ranges of dates at the beginning of data collection because relatively larger numbers of interviews were completed during the first few months of data collection.

We examined the pattern of cumulative mean response by date of interview for the following: mean age in the base year; percent minority; percent enrolled in spring 1998; percent who attained a degree by June 1998; and mean number of risk factors. In addition, for all students combined, we examined the mean of the institution level attended in the base year. For students who attended 4-year institutions in the base year, we examined the percentage who reported in the base year that they were attempting a baccalaureate degree. If the mean responses from the later groups of respondents are reasonably consistent, then obtaining additional responses probably will have little effect on survey estimates and nonresponse bias probably is negligible.

Some potential for bias by institution level was evident for overall population estimates because it appears that additional respondents would be more likely to have attended less-than-4-year institutions. The only other evidence of potential for bias was with respect to the percentage of respondents who were enrolled in the spring of 1998. For students from 4-year institutions and for the sample as a whole, it appears that additional respondents would be more likely to have not been enrolled in the spring of 1998.

Data source: The NCES 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:1996/1998).

For technical information, see the complete report:

Wine, J.S., Whitmore, R.W., Heuer, R.E., Biber, M., and Pratt, D.J. (2000). *Beginning Postsecondary Students Longitudinal Study First Follow-up 1996–98 (BPS:96/98) Methodology Report* (NCES 2000–157).

Author affiliations: J.S. Wine, R.W. Whitmore, R.E. Heuer, M. Biber, and D.J. Pratt, Research Triangle Institute.

For questions about content, contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

To obtain the complete report (NCES 2000–157), call the toll free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

DATA PRODUCTS, OTHER PUBLICATIONS, AND FUNDING OPPORTUNITIES

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Data Products

Data File: 1997–98 Private School Directory CD-ROM

This CD-ROM contains the 1997–98 Private School Directory. The school listings are derived from the 1997–98 Private School Survey (PSS) and include the names, addresses, telephone numbers, enrollment, and other descriptive data for 29,845 private schools and kindergarten programs in the 50 states and the District of Columbia. A school locator, which can perform searches for individual schools or for types of schools, is provided. The results of these searches may be downloaded into a file as well as displayed on-screen. The complete data file for the Directory, with documentation, may also be downloaded into a file.

For questions about content, contact Stephen Broughman (*stephen_broughman@ed.gov*).

To obtain this CD-ROM (NCES 2000–313), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Beginning Postsecondary Students Longitudinal Study, First Follow-up (BPS:96/98): Public Use Data Analysis System (DAS) CD-ROM

Featured on this CD-ROM are data from the Beginning Postsecondary Students Longitudinal Study, First Follow-up (BPS:1996/1998). BPS:1996/1998 includes data for students who started their postsecondary education during the 1995–96 academic year, and were surveyed in 1996 and again in 1998. BPS data pertain to persistence, progress, and attainment from initial time of entry into postsecondary education through leaving and entering the workforce.

In addition to the BPS:1996/1998 data, this CD also includes all the other NCES data sets that have been made available for public use through the Data Analysis System (DAS) as of March 2000. DAS software provides convenient public access to several NCES surveys, allowing users to produce custom-made tables and correlation matrices by selecting variables of interest. Visit the DAS Home Page (*http://nces.ed.gov/das/*) for a list of available surveys as well as access to the latest DAS updates.

For questions about this data product, contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

To obtain this CD-ROM (NCES 2000–155), call the toll-free Ed Pubs number (877–433–7827) or contact GPO (202–512–1800).

Data File: Fall Staff in Postsecondary Institutions: 1997

This file contains fall 1997 staff data collected through the NCES Integrated Postsecondary Education Data System "Fall Staff Survey" (IPEDS-S) and "Consolidated Survey" (IPEDS-CN). The file makes available data for postsecondary institutions in the 50 states, District of Columbia, and outlying areas that are eligible to participate in Title IV financial aid programs. Data on degree-granting institutions include the distribution of full- and part-time staff by primary occupation, gender, and race/ethnicity; full-time faculty by academic rank and tenure; full-time new hires by gender and race/ethnicity; and contracted or donated services by occupational activity. Data on nondegree-granting institutions include the number of staff by employment status, primary occupation, and gender.

The fall staff data and documentation can be downloaded from the NCES Web Site. The data are in four fixed-length text files, which can be used with most software, including statistical packages such as SAS and SPSS, database packages such as ACCESS and DBASE, and programming languages such as C and Visual Basic.

For questions about this data product, contact Rosa M. Fernandez (*rosa_fernandez@ed.gov*).

To obtain this data product (NCES 2000–165), visit the NCES Web Site (*http://nces.ed.gov*).

Electronic Codebooks for Windows 95/98 CD-ROM

This CD-ROM provides updated Electronic Codebook (ECB) software for all 22 of the postsecondary and longitudinal data sets that NCES released with ECBs prior to February 2000. For each of these data sets, separate software is provided to update the old version of the ECB. The updated ECBs run under Windows 95/98, providing enhanced functionality, particularly for those ECBs that were originally developed for DOS.

No data are on this CD. After installing an ECB update, therefore, you must have the original restricted- or public-use CD to access data. Also, the ECBs on this CD do not include any new variables that may have been computed for the data sets since their original release.

For questions about this CD-ROM, contact Paula R. Knepper (*paula_knepper@ed.gov*).

To obtain this CD-ROM (NCES 2000–193), contact Aurora D'Amico (*aurora_d'amico@ed.gov*).

Other Publications

Reference and Reporting Guide for Preparing State and Institutional Reports on the Quality of Teacher Preparation: Title II, Higher Education Act

In October 1998, Congress voiced its concern for the quality of teacher preparation by enacting Title II of the Higher Education Act (HEA). Title II authorizes new federal grant programs that support the efforts of states, institutions of higher education, and their school district partners to improve the recruitment, preparation, and support of new teachers. Section 207 of Title II also includes new accountability measures in the form of annual reporting requirements for institutions and states on teacher preparation and licensing.

This *Reference and Reporting Guide* is intended to assist states and institutions of higher education in fulfilling Title II reporting requirements regarding teacher preparation and certification. The guide fulfills the congressional mandate that NCES develop uniform definitions and reporting methods for institutions of higher education and states in meeting the reporting requirements.

The reports mandated in Title II, section 207, of the HEA are required of two groups: (1) institutions of higher education that conduct teacher preparation programs enrolling students who receive federal assistance under Title IV of the HEA; and (2) states that receive HEA funds.

To obtain this guide (NCES 2000–089), visit the Office of Postsecondary Education Web Site *(http://www.ed.gov/offices/OPE/News/teacherprep/index.html)* or the NCES Web Site *(http://nces.ed.gov)*.

Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey

Irwin Kirsch, Kentaro Yamamoto, Norma Norris, Donald Rock, Ann Jungeblut, Patricia O'Reilly, Anne Campbell, Lynn Jenkins, Andrew Kolstad, Martha Berlin, Leyla Mohadjer, Joseph Waksberg, Huseyin Goksel, John Burke, Susan Rieger, James Green, Merle Klein, Peter Mosenthal, and Stéphane Baldi

In 1992, NCES conducted the National Adult Literacy Survey to measure the nature and extent of literacy skills among the adult population, age 16 and older. A State Adult Literacy Survey was concurrently performed in 11 states to produce state-level results comparable to the national data. In addition to the household samples, inmates from 87 state and federal prisons were randomly surveyed to represent the inmate population in the United States. Their participation helped to provide better estimates of the literacy levels of the total population and made it possible to report on the literacy proficiencies of this segment of society.

The *Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey* includes details on the sample design, weighting, instrument development, data collection and processing, scaling and scoring, and literacy levels used for this assessment. The technical report also provides sample SAS and SPSS programs for implementing the jackknife procedure to estimate standard errors.

Author affiliations: I. Kirsch, K. Yamamoto, N. Norris, D. Rock, A. Jungeblut, and P. O'Reilly, ETS; A. Campbell, Diné College; L. Jenkins, Wordsworth Writing and Editing; A. Kolstad, NCES; M. Berlin, L. Mohadjer, J. Waksberg, H. Goksel, J. Burke, S. Rieger, J. Green, and M. Klein, Westat, Inc.; P. Mosenthal, Syracuse University; S. Baldi, American Institutes for Research.

For questions about content, contact Andrew Kolstad *(andrew_kolstad@ed.gov)*.

To obtain the complete report (NCES 2000–465), call the toll free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

The 10th Federal Forecasters Conference—1999: Papers and Proceedings

Debra E. Gerald (editor)

The 10th Federal Forecasters Conference, held June 24, 1999, in Washington, DC, provided a forum where forecasters from different federal agencies and other organizations could meet and discuss various aspects of forecasting in the United States. The theme of the conference was "Forecasting in the New Millennium."

One hundred and seventy-seven forecasters attended the day-long conference. A variety of papers were presented on topics related to agriculture, the budget, the economy, health, labor, population, and forecasting techniques. These papers are included in these proceedings.

The proceedings also include selected papers from federal presenters at the 19th International Symposium on Forecasting, held June 27–30, 1999, in Washington, DC. The symposium was sponsored by the International Institute of Forecasters.

Editor affiliation: D.E. Gerald, NCES.

For questions about these proceedings, contact Debra E. Gerald *(debra_gerald@ed.gov)*.

To obtain these proceedings (NCES 2000–017), visit the NCES Web Site *(http://nces.ed.gov)*.

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur *(edith_mcarthur@ed.gov)* or visit the AERA Grants Program Web Site *(http://aera.ucsb.edu)*.

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek *(alex_sedlacek@ed.gov)*.

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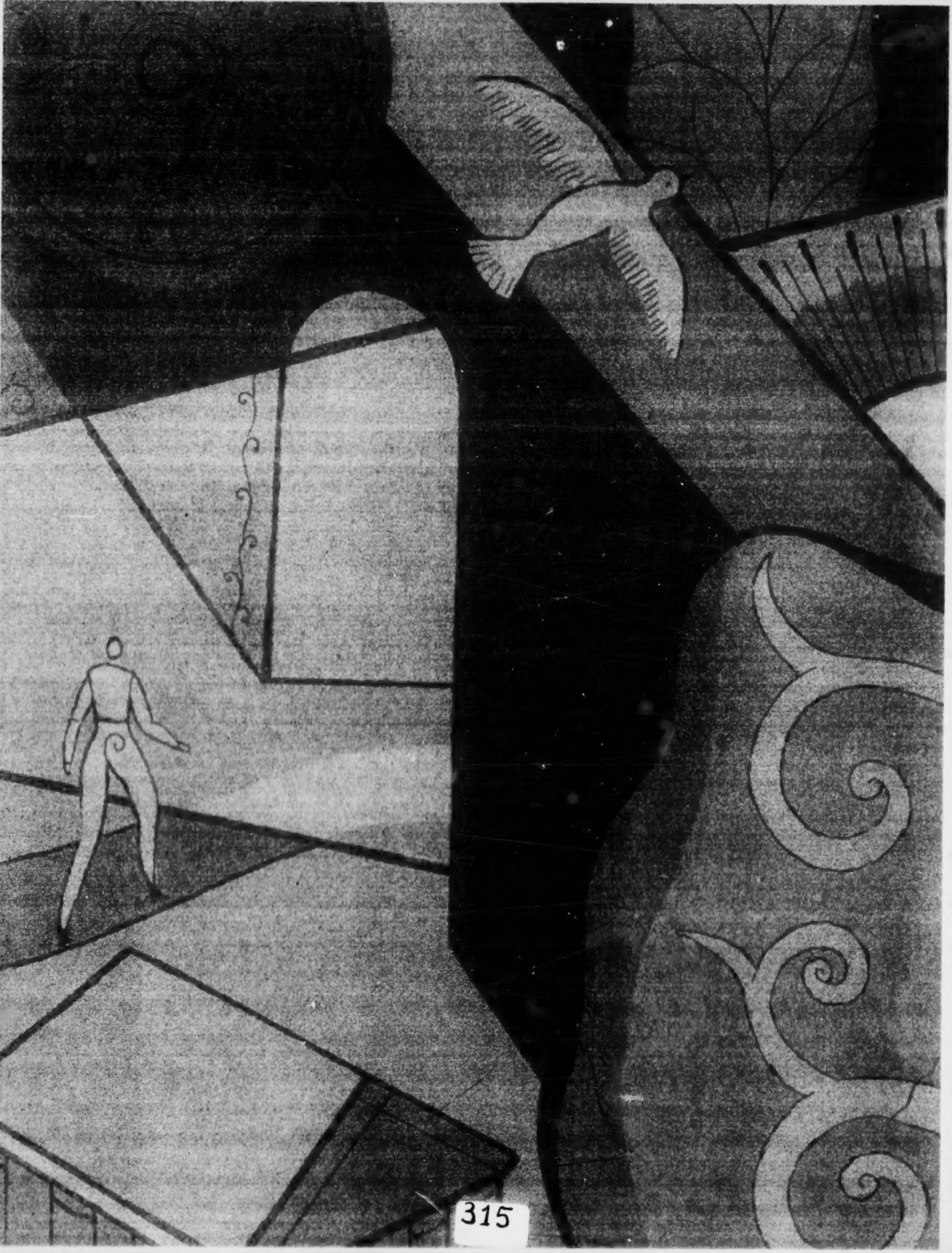

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